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DEPARTMENT OF PLANNING AND DEVELOPMENT

The Honourable Wm. Griesinger, Minister

A. H. RICHARDSON, Chief Conservation Engineer

# DON VALLEY CONSERVATION REPORT



ONTARIO



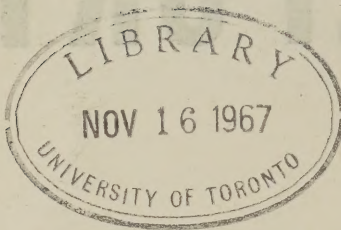
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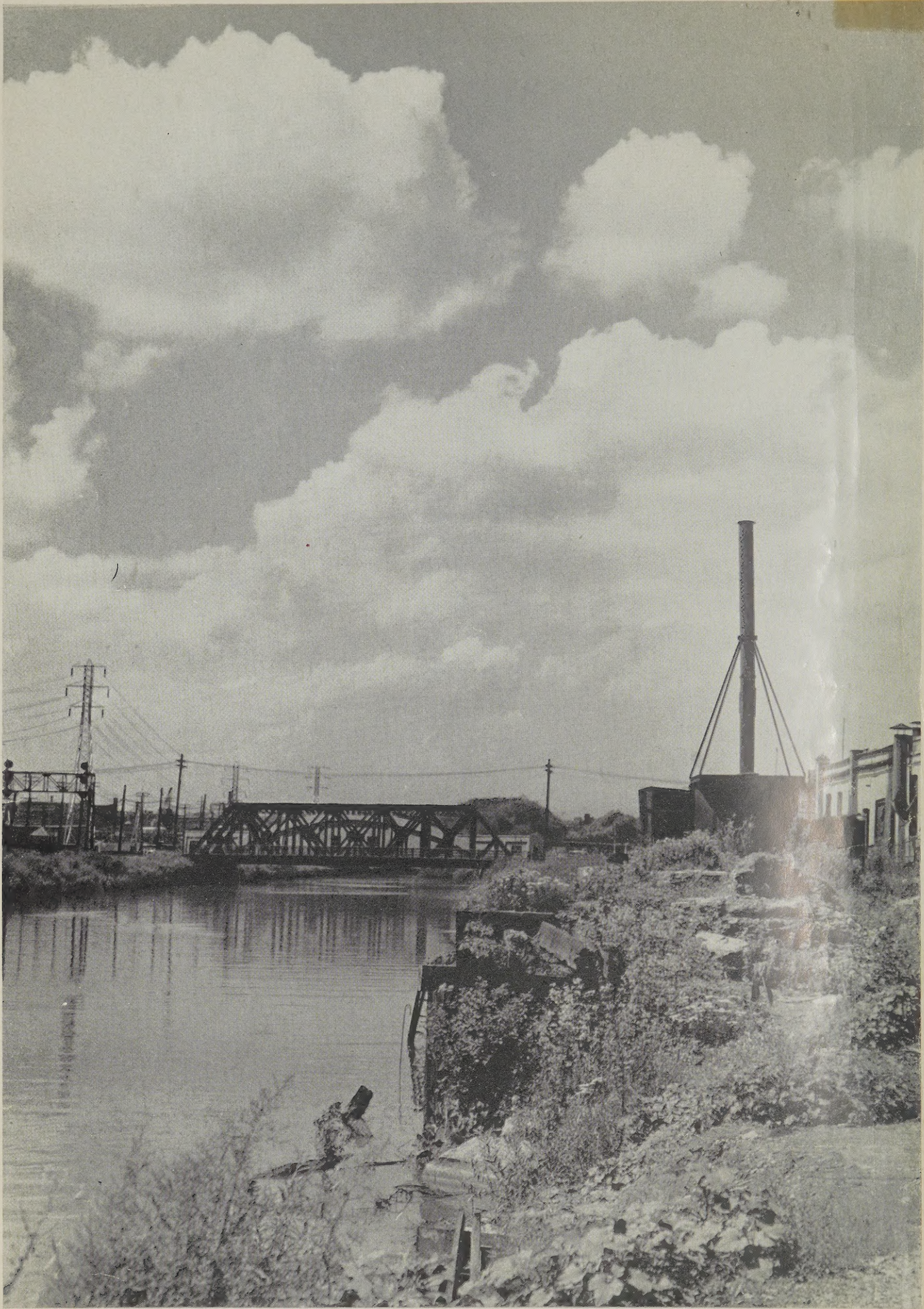






*The natural beauty of the upper Don Valley with its shade trees and cool streams should be protected and preserved for all time.*





*The lower Don has been taken up for industrial purposes.  
It is unattractive and heavily polluted.*







Two hundred copies of this  
Report have been prepared,  
of which this is

Number

70



LETTER OF TRANSMITTAL

Honourable William Griesinger, Minister,  
Department of Planning and Development,  
Parliament Buildings,  
Toronto, Ontario.

Honourable Sir:

I take pleasure in transmitting herewith  
a Conservation Report on the Don Valley, in six sections  
namely:

General (Location and Boundaries, Geology,  
Physiography and Land Settlement); Soils and Land Use;  
Forestry; Water; Wildlife and Recreation.

Yours very truly,

A.H. Richardson,  
Chief Conservation Engineer.

Toronto, November 15, 1950.







C O N S E R V A T I O N   B R A N C H

TECHNICAL STAFF

Chief Conservation Engineer

A. H. RICHARDSON, M.A., S.M.Silv., F.E., P.Eng.

Soils and Land Use

W.J.P. CRESWICK, B.A.

Forestry

A.S.L. BARNES, B.Sc.F.

B.O. SMITH, B.Sc. F.

Hydraulic Engineering

C.E. BUSH, B.A. Sc., O.L.S., P.Eng.

J.W. MURRAY, B.A.Sc., P.Eng.

Wildlife and Recreation

K. M. MAYALL, M.A., B.Sc.F.

Historical Research

V.B. BLAKE

Authorities Liaison

H.F. CROWN, B.S.A.

L.N. JOHNSON, B.S.A.

L.G. BAXTER, B.A.

Editorial

GLORIA NEWSON, B.A.

---

Consultants in Hydraulic Engineering

PROFESSOR G. ROSS LORD, B.A.Sc., S.M., Ph.D.  
University of Toronto

PROFESSOR J.D. LEE, M.S., P.Eng.  
Queen's University

Consultant in Fish Research

PROFESSOR F.P. IDE, M.A., Ph.D.  
University of Toronto

Consultant in Lakeshore Erosion

PROFESSOR G.B. LANGFORD, B.A.Sc., Ph.D.  
University of Toronto

Consultant in Forestry

F.G. JACKSON, B.Sc.F.  
University of Toronto

Consultant in Ground Water Studies

PROFESSOR ALEKSIS DREIMANIS, M.Sc.  
University of Western Ontario.







## Acknowledgements

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We are grateful for the co-operation and assistance given by the Office of the Engineer of North York Township and also that given by the Climatology Branch of the Meteorological Service in Toronto.

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We wish to give credit to the United States Department of the Interior, Natural Park Service, for use of photographs published in that Department's book, Park and Recreation Structures, by Albert A. Good. These photographs may be seen following pages 22, 26, 28, 33 and 34 in the Recreation section of this Report. The Toronto Globe and Mail kindly allowed us to use the photograph following page 4 (centre) in the section on Water, and that following page 1 in the Recreation section.







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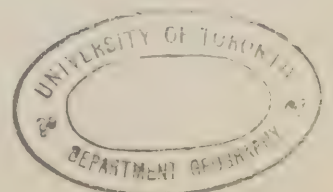
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RECOMMENDATIONS  
STATED OR IMPLIED IN THIS REPORT

General

1. That the Authority co-ordinate the efforts already being made by various organizations to protect and preserve houses, churches, mills and other historical sites on the Don Watershed.
2. That selected sites connected with early settlement be marked in a more suitable manner and, where circumstances allow, be included in areas set aside for recreation, and that these be given names which will connect them with the history of the site.
3. That the Don Authority in co-operation with the Humber Authority and other organizations and government departments of the Province consider the establishing of a farmers' museum, in which typical old buildings, such as a school, church, country store, sawmill etc., be moved into one area or "village" and that these buildings be used as a repository for equipment, utensils, tools, vehicles etc. of historical interest.

Land Use

4. That the Authority encourage and assist in the building of farm ponds. p. 43.
5. That one or more farms which include land suitable for contour tillage and other conservation practices be established as "pilot" farms to encourage the practice of soil conservation. p. 63.
6. That soil conservation measures be practised as indicated on the map of land use capability which accompanies this report. p. 65.
7. That as public acquisition of land for recreation and headwater control of streams and changes in tenure of farm properties are carried out they be done in accordance with the demonstrated capabilities of the soil. p. 58



## Forestry

8. That the Don Valley Forest of about 3,600 acres be established by the Authority to protect the sources of those permanent streams rising in the moraine. p. 43.
9. That every effort be made to retain all the existing woodland, which totals only 5,443 acres or 6.1 per cent of the area of the watershed. p. 34.
10. That private planting, particularly on the steep slopes of the valley, be encouraged. p. 43.
11. That the Authority inaugurate a scheme to aid farmers in fencing their woodlots similar to that adopted by the County of Halton. p. 46.
12. That consideration be given to the problem of organized marketing of woodlot products with the object of aiding farmers in finding the best markets for them. p. 52.
13. That rural schools within the watershed be encouraged to enter the Provincial School Forestry Competition. p. 42

## Wildlife

14. That farmers be encouraged to improve land for wildlife by the elimination of grazing of woodlots, by selective rather than clear-cutting of woodland, by improved cultivation practices and by the planting of wildlife food patches. p. 9.
15. That surveys be made of areas to be reforested to determine the state and trend of meadow mouse populations. p. 16.
16. That research be carried out to discover adequate repellent washes for the protection of orchard trees from the European hare. p. 15.
17. That the fishing in the watershed be improved by the following methods:
  - (a) Encouragement of owners of cold spring creeks to extend the range of speckled trout by planting alders along the stream banks or by constructing trout ponds near the sources.
  - (b) Encouragement of farmers to construct and maintain warm water farm ponds. p. 22.





18. That the introduction of fish into the watershed be restricted to those parts of the river shown by the survey to be suitable for the species concerned. p. 18.

#### Recreation

19. That the Authority use every available means to speed the program for improved sewage disposal incorporated in the Toronto and York Planning Board's Report of December 1, 1949. p. 16.
20. That all sections of the related areas of the Toronto district be called upon to adhere to the same standards and conditions so far as sewage disposal and storm water drainage are concerned. p. 19.
21. That the Authority use all available means to speed the official adoption of the Green Belt plan already proposed and recommended by the Toronto and York Planning Board. This involves the eventual acquisition of 2,106 acres within the Don Watershed. p. 22.
22. That a small artificial lake be formed by the construction of a low dam at the Oriole Damsite just north of the Lawrence Avenue bridge over the Don. p. 23.
23. That trees be planted to screen off unsightly features in Riverdale Park. p. 23.
24. That a long-range plan be made for the eventual covering of the East York dump west of the Don River and the incorporation of this area into the Green Belt. p. 23.
25. That an open air theatre be constructed at or near Sugar Loaf Hill south of the bridge at the Forks of the Don. p. 23.
26. That a path and footbridges be maintained along the East Branch north from the Forks of the Don. p. 23.
27. That two small extensions of the Green Belt be incorporated into the present Green Belt plan -
- (a) An extension up the Wilket Creek Valley as far as the boundary of the I.B.M. golf course. p. 24.
  - (b) An extension up the Taylor Creek Valley to a point beyond Walden Avenue. p. 24.





28. That swimming facilities be improved at the mouth of Wilket Creek. p. 24.
29. That a public right of way be acquired at each of the following locations:
  - (a) Past the York Downs Golf Club. p. 25.
  - (b) Through the Sunnybrook Hospital property. p. 25.
30. That the swimming-tanks planned for Riverdale Park and Pears Park (Eglinton Avenue) should be completed at the earliest possible date. p. 26.
31. That a park patrol be organized to protect the valley from vandalism and from undesirable persons, the men to be sworn in as constables and to be in uniform. p. 27.
32. That park services, including a supply of drinking water, picnic tables, fireplaces, garbage receptacles and toilet facilities, be provided at points in the Green Belt where intensive use is expected. p. 27.
33. That minimum standards be set for the construction, maintenance and operation of buildings set up for the sale of refreshments by concession in the Green Belt areas. p. 27.
34. That the Authority undertake or support a program of poison ivy control by "2-4-D" and mosquito control by "DDT" in the Green Belt. p. 27.
35. That the Authority support the acquisition and development of an area in the Don Valley as a Botanical Garden. p. 29.
36. That the Authority, using its powers under the Conservation Authorities Act of 1946, purchase Green Belt property, since the Green Belt is one of the natural resources of the watershed and should be conserved. p. 31
37. That the municipalities concerned should zone Green Belt lands, restricting their use to recreation where the lands need not be acquired outright. p. 32.



38. That an area of 55 acres one-half mile west of Yonge Street on the Langstaff side road be acquired for development as a park and that a low dam be built within the park, creating an artificial lake of 27 acres. p. 33.
39. That an area of 2,913 acres north-east of Maple be zoned under Section 406 of the Municipal Act of Ontario, thus restricting use of the land to forestry and recreation. p. 34.
40. That the Authority acquire two areas of 160 acres (Maple Hills Park) and 363 acres (Poplar Hills Park) within the above zoned area for recreation parks. p. 34.
41. That from one to fifteen acres be acquired at each of eight selected picnic sites which would be provided with parking space and equipped with tables and fire-places. p. 35.











## CHAPTER 1

### THE RIVER, GEOLOGY AND PHYSIOGRAPHY

#### 1. Location and Boundaries

The watershed of the Don River is an area of 141 square miles lying to the north of Lake Ontario at Toronto. It is roughly rectangular in shape, about 18 miles long and 9 miles wide. On the north and west, it is bounded by the Watersheds of the Humber, Etobicoke and Mimico, on the east by those of the Rouge and Highland Creek. The watersheds of small streams which flow directly into Lake Ontario separate the southern boundary from Lake Ontario except for the valley at Riverdale through which the Don flows to Toronto Bay.

Although the term "watershed" is sometimes defined as the high ground separating two river systems, it is common usage in North America to call the whole area drained by a river and its tributaries a watershed. This latter meaning has been confirmed by statutory usage and is the one followed in this report. Synonymous terms are - catchment area and drainage area.

The river has two main branches. They arise in the hills in the north part of Vaughan Township. The two branches run nearly parallel to each other in a south-easterly direction. The eastern branch crosses Yonge Street at Thornhill and the western branch at York Mills in Hogg's Hollow. A number of tributaries feed both these branches. The two main branches join at the forks of the Don, one-half mile east of Thorncliffe race track at the Don Mills road. Also joining the main stream at this point is a tributary, Taylor Creek, which drains the south-west corner of Scarborough Township. Some small tributaries and one fair-sized stream running through Rosedale join the river between the forks and its mouth at Toronto Bay.

The main streams rise in hills with elevations









of 1,050 feet above sea level. The elevation of the lake is 245 feet, so that the river falls more than 800 feet. The fall in the land is about 45 feet per mile, but as the river meanders throughout its course, its gradient is less. Near its source the river has a gradient of about 46 feet per mile for about 7 miles, but along the lower 13 miles of its course, it falls at the approximate rate of 20 feet in the mile.

The east branch has many tributary streams fed by springs which issue from the hills between Maple and Richmond Hill. The west branch has a few springs at its sources. Throughout most of the watershed, the streams are fed by surplus run-off, seepage and some springs occurring mostly along the banks.

Due to the remarkable pattern of the surface relief, which consists of parallel ridges and hollows with a general north-west to south-east trend, the river and its tributaries are confined to the same direction. The smallest tributaries run at right angles to the main drainage pattern. As the streams join they cut across the ridges separating them.

The valleys are characteristically U-shaped. The sides are quite steep and rise as much as 100 feet, as at York Mills. The valley floors are flat and the streams meander back and forth along them in channels which are usually deep enough to contain all but the greatest flows. Near the headwaters the valleys are broadly V-shaped and there is less meandering. The main stream south from the Bloor Street Viaduct has been canalized into a straight channel.

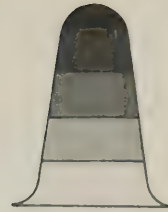
In many places, the meanders of the stream cut away at the main bank of the valley. In so doing the stream becomes very muddy. Thus it is that stretches of the river close to Toronto have a muddy, turbid look, especially when the flow is great in spring.

Ten municipalities are within, or partly within, the watershed. The greater part of North York Township





# CONTOURS



1,000 FEET TO 1,100

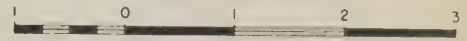
800 FEET TO 1,000

600 FEET TO 800

400 FEET TO 600

245 FEET TO 400

SCALE : MILES





is in the watershed and it has the largest area drained by the river. Vaughan Township also has a large area in the watershed. The south-west corners of Markham and Scarborough Townships are drained by tributaries.

Toronto is the largest municipality in population, and has considerable area drained by the river. York Township, East York, Forest Hill Village, the Town of Leaside and the Village of Richmond Hill are the other urbanized municipalities, all or partly drained by the Don River system. The suburban and rural municipalities form the hinterland of the urban area in the watershed and provide the city with farm products, chiefly milk and vegetables, and with potential recreation areas. The city's interest in development of the valley is therefore both direct and indirect.

## 2. Geology

The bedrock which underlies the watershed has little direct effect on the features of the landscape because it is covered to a depth of hundreds of feet by unconsolidated material of glacial deposition. The bedrock has, however, an indirect effect in the strongly clayey composition of the material at the surface.

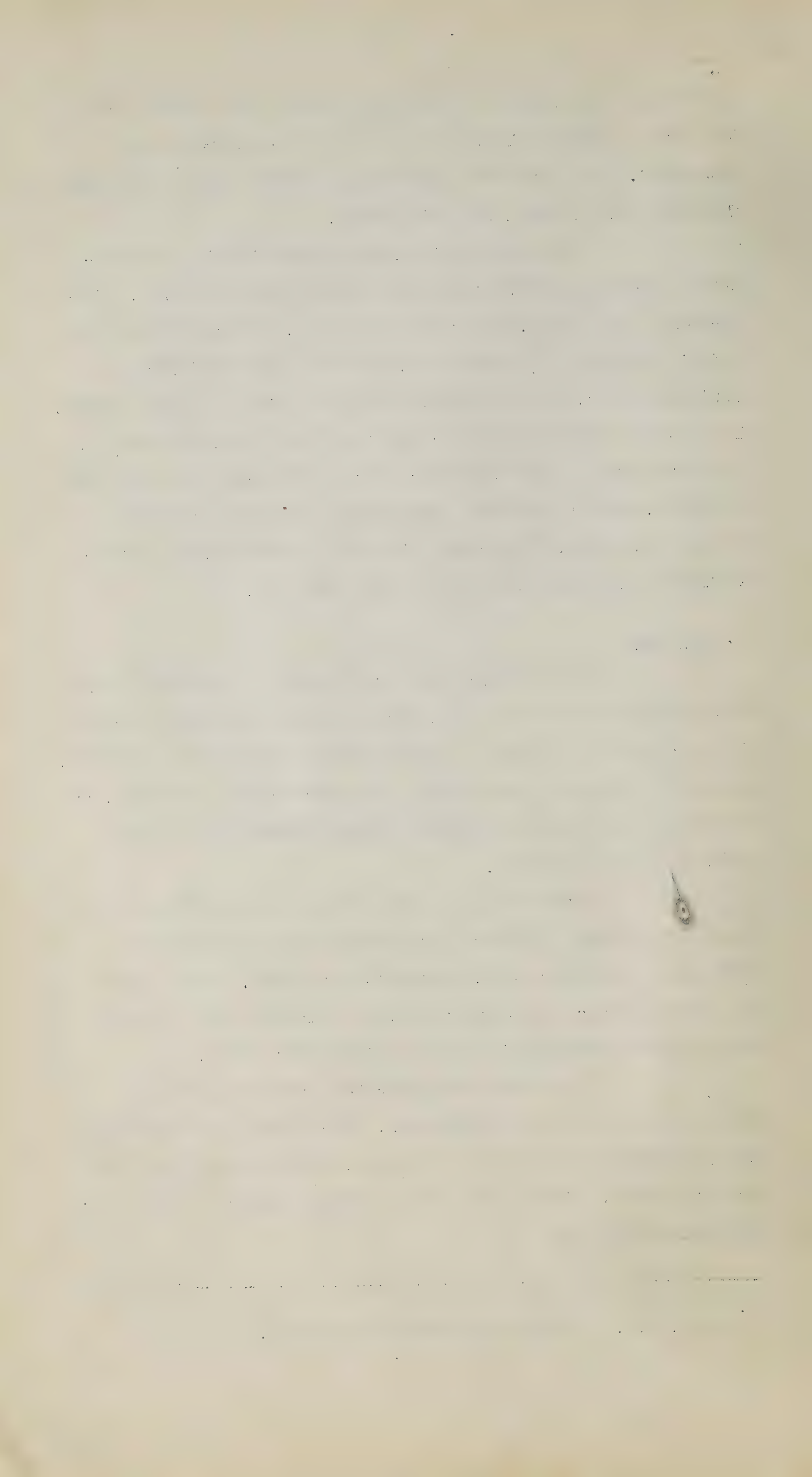
The rock is a sedimentary deposit of great age. It is shale in nearly horizontal beds with variable hardness, depending on the proportion of lime. At no place on the watershed is it exposed at the surface, but it can be seen in the workings at the Don Valley Brick Yard.

The rocks are described<sup>1</sup> by geologists in terms of their age and formations. The formation underlying the watershed is called the "Dundas", belonging to the Ordovician system. This is the second oldest system of strata of the Palaeozoic Age.

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1. Caley, J.F.: Geological Survey Memoir 224.







This aerial photograph of a section on the eastern boundary of the watershed shows typical features of the landscape. Ridges and valleys running in a northwesterly direction determine surface drainage. This is characteristic of the watershed.

The variety of land use and layout of holdings can be seen; farms, small holdings, horticulture, suburban housing and artificial drainage are easily identified.





Southern Ontario is underlain by Palaeozoic rocks which lie over the Canadian Shield. The shield consists of the oldest rocks, the Precambrian. The Precambrian rocks are exposed in the shield north of Severn. The shield has given rigidity to this part of the continent, and the rocks have not been deformed like those of the Appalachian Mountains. There is a slight dip in the strata so that the rock slopes gently south-westward away from the shield toward the basin of the Great Lakes. This may account, in part, for the general southerly slope of the land. Otherwise the surface relief is not related to the bedrock.

The rocks of the Dundas formation are shale. Some beds have a high proportion of sand and limestone in the shale. The surface material has been derived, in large part, from the underlying rock. This makes the soil of the region predominantly clayey. The clay soils have a fair proportion of lime, partly from the lime in the shale and partly from limestone in other Palaeozoic formations over which the glacier passed. Other mineral components of the soil have been carried by the glacier from more remote parts, even as far as outcrops of the shield.

### 3. Glacial Geology

Because the soil and surface relief of the watershed is the result of glacial action, a brief account<sup>1</sup> of local glacial geology is given here .

The mantle of unconsolidated material covering the bedrock has accumulated in the past million years, in the Pleistocene epoch. Throughout this time the active agents were glaciers, lakes and weathering in interglacial periods. It is now generally believed that the ice covered this region three times. The deposits of three glaciers and two interglacial periods are recognized at Scarborough Bluffs and at

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1.

Coleman, A.P.: The Pleistocene of the Toronto Region, Ont. Dept. of Mines, Vol. XLI, Part VII, 1932, Annual Report.





The bedrock shale and overlying deposits of waterlaid sands and clays capped by glacial boulder clay are exposed in the Don Valley Brickworks.



The sandy and gravelly material of the moraine at the headwaters are exposed in these workings near Maple.



The typical U-shaped valley of a small tributary stream is shown in this early spring landscape.





the Don Valley Brick Works. Indeed, the evidence of glaciation found in the Toronto region, particularly on the Don, is unique and is recognized throughout the world as such.

The ice which covered the northern half of the continent was in the form of a continental glacier, somewhat like that which now covers most of Greenland and Antarctica. Evidence of glaciation is in transported material, such as "erratic" boulders (granite removed hundreds of miles from granite country), scratches on rock indicating grinding and direction of movement and a number of land forms which are similar to those which can be seen being formed in mountain glaciers. The relatively soft rock of the region and the recurrence of glaciation accounts for the depth of material called drift, which is found locally. Well drillings commonly reveal as much as 250 feet of drift and one site, near Thornhill, is reported to have 650 feet.

The present surface relief is mostly the result of the last glaciation, called the Wisconsin, and the work of the lake formed by meltwaters, called Lake Iroquois, which filled the Lake Ontario basin. The youngest valleys and deposits are the result of the present stream system and are classified as "recent", that is, the result of the last ten or twenty thousand years.

The evidence shows that the Wisconsin glaciation advanced across Southern Ontario in a south-westerly direction. In the stage at which our landscape was moulded, it consisted of two lobes. One came from the Trent-Simcoe basin, advancing south-west, and one from the Lake Ontario basin, advancing north-west. In its north-western advance, it shaped the ground with a pronounced "grain" in a south-east to north-west direction. This shape of the surface strongly influences the pattern of surface drainage. At the line of contact of the two lobes, a complex system of hills was built up. These are called the "Interlobate Moraine" and





it is from a branch of this formation that the headwater streams arise.

#### 4. Glacial Land Forms

##### (a) Classification

Glaciation constructs certain land forms, each with its own set of topographic and soil features, which are classified in terms of their mode of deposition. The glacial land forms found on the watershed are here described.

##### (b) The Till Plain

Material deposited under a moving glacier is called ground moraine and the land form thereby created is a "till plain". The surface relief is undulating to rolling and in this instance has the grain of alternate ridges and valleys previously mentioned. The material consists of rock fragments, varying in size from particles of clay to quite large boulders. In composition it varies from a heavy clay loam, called heavy till, to a loam called light till.

##### (c) The Interlobate Moraine

Material pushed up at the face of the glacier during a halt is called a terminal moraine. Its topography is rougher, more hilly or hummocky than that of the till plain. The materials are similar to those of a till plain although generally lighter in texture. As the ice face becomes stagnant or retreats, meltwaters sort out and deposit coarse materials with higher proportions of sand and gravels. Roughly sorted sands and gravels are formed by meltwaters into conical hills called "kames" and ridges called "eskers". Stratified sand deposited by meltwaters as they slow down in their flow away from the glaciers forms "outwash plains". All these features are found in the interlobate moraine.

##### (d) Bevelled Till Plain

At one stage in the disintegration of the glacier, meltwaters were trapped in a large ponding. This ponding, with varying depth, covered much of the till plain.



The water smoothed or bevelled the surface of the till plain making it more gently undulating or even flat. It also had the effect of depositing silt and clay or of reworking the material of the till and redepositing the finer material on the surface. The soils of the bevelled till plain therefore tend to be heavier, more compact and relatively stone-free. This formation on the Don Watershed is called the "Peel Plain".

(e) Lacustrine Features

As the Ontario lobe of the glacier melted, the basin of the lake and the land to the north became free of ice. The natural outlets of the lake, however, were dammed by ice and a larger lake was formed. This is called Lake Iroquois. The shore features of this lake are easily recognized in the Avenue Road and Yonge Street hills. A number of other lacustrine features were formed. Below the hill the soil in Toronto is largely clay or silt deposited on the floor of the lake or sand in river deltas or sand bars. Deltas and bars were also formed by streams flowing into the Peel ponding which caused areas of sandy soil of some significance on the Peel Plain.

5. Physiography of the River

The valleys of the Don River system are comparatively young. Their history has been complicated by the varying levels of Lake Iroquois and Lake Ontario due to changes in volume of water, damming by ice and later elevation of the land when it was released from the weight of the ice.






The main features of a young river system are the steep-sided, V-shaped valleys and the incompleteness of the surface drainage. As a river gets older, the valleys broaden out with gently sloping sides and the river system, by headwater erosion, extends to drain the whole surface. The surface relief of this watershed still exhibits the features of the glacial deposits, especially near the headwaters, and



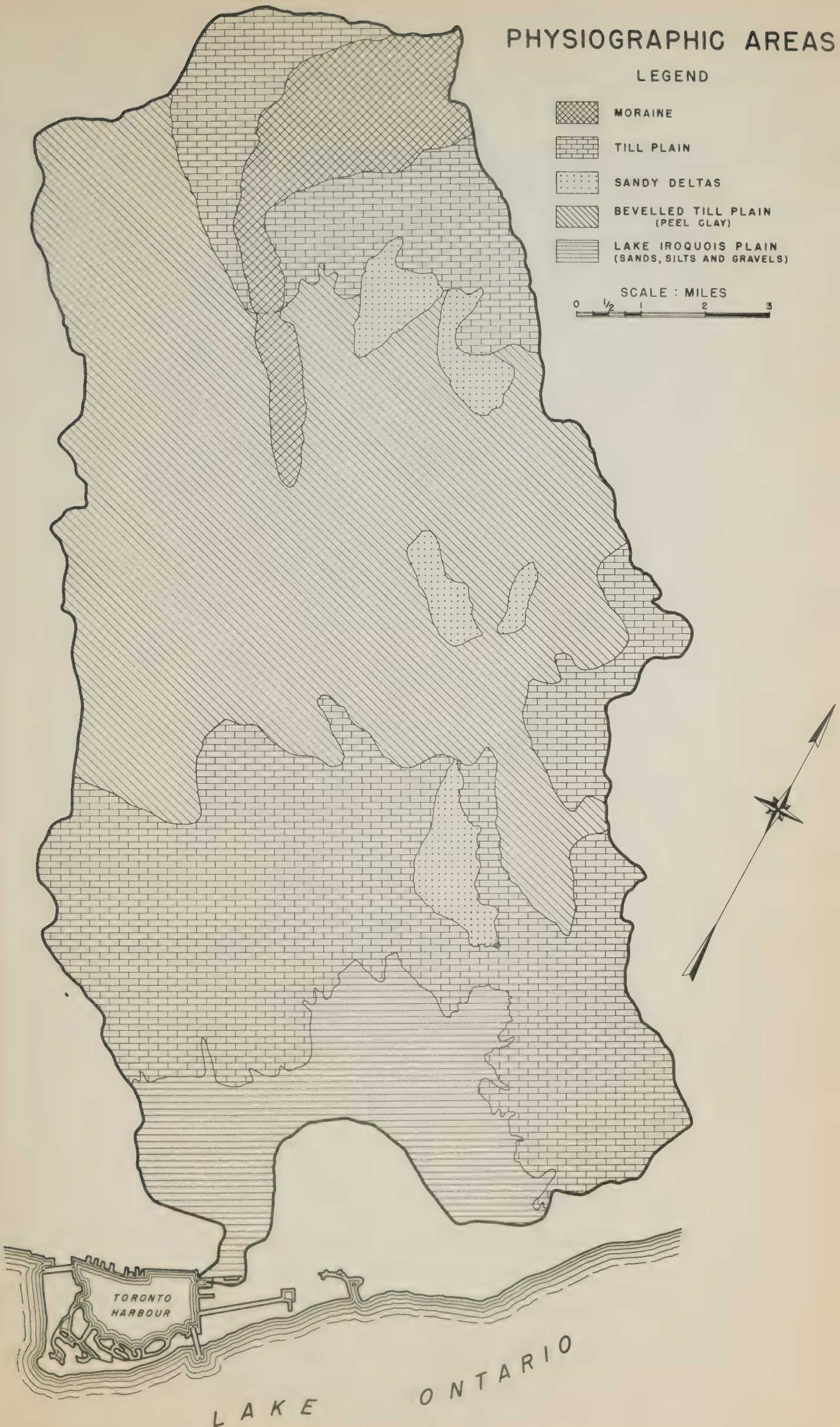


# PHYSIOGRAPHIC AREAS

## LEGEND

-  MORaine
-  TILL PLAIN
-  SANDY DELTAS
-  BEVELLED TILL PLAIN  
(PEEL CLAY)
-  LAKE IROQUOIS PLAIN  
(SANDS, SILTS AND GRAVELS)

SCALE : MILES  
0 1/2 1 2 3







the stream courses conform to the surface rather than mould it.

The steep-sided valleys so characteristic of the Don near Toronto were cut by streams flowing into Lake Iroquois. Across the mouth of the Don, as it existed in the time of Lake Iroquois, a sand bar was formed in the same way as Toronto Island has been formed across the mouth of the present river. This bar now forms a ridge of sandy and gravelly land in East Toronto. The later stages of Lake Iroquois and Lake Ontario have altered the river in its lower reaches. The Lake Iroquois "Toronto Bay" has been filled in with sand and clay and elevated above the level of Lake Ontario. The valleys of the Don, in their lower reaches, have also been filled in to form flat floors. The present river system flows across these floors to find outlets at the present level of the lake.

The flow of water was greater in post-glacial times and the valleys are larger than are required by the modern rivers. The streams are now cutting into the floors of the valleys in courses which meander over the flood plain.

The headwater streams are typically young, with V-shaped valleys, little meandering and with quite steep gradients. Flow is maintained in many of them by springs issuing from the interlobate moraine or along their banks. Streams arising on the till plain and the Peel Plain generally dry up in summer. All the streams have a much greater flow during the spring thaw because of the surface run-off of precipitation accumulated in the form of snow.

## 6. Climate

With respect to a river system, the main features of the climate are the uniformity of rainfall throughout the year, the high temperatures of summer with resulting great demand for moisture, the cool autumns during which the soil deficit in moisture is made up and the cold winters during



which the precipitation is accumulated in the form of snow so that surface run-off is concentrated during the thaw.

The following table of temperatures and precipitation is compiled from climatic summaries published by the Meteorological Division of the Department of Transport. (Averages of 105 years' observations at Toronto).

TABLE I

Month	Mean Temperature	Mean Precipitation (inches)	Mean Snowfall (inches)
January	23	2.71	16.0
February	22	2.43	15.3
March	30	2.58	10.7
April	42	2.48	2.8
May	53	2.91	0.1
June	63	2.67	
July	69	2.95	
August	67	2.73	
September	60	2.90	
October	48	2.43	0.4
November	37	2.76	4.2
December	27	2.63	12.4
Year	45 (Avge.)	32.18	61.9

This information is presented in the accompanying graph.

The relation between supply of moisture and need is the significant feature of climate with regard to a river. The water falling on the land is disposed of as follows: to the ground to recharge ground water and soil moisture, through the soil to the streams by way of springs and seepage, to the streams as surface run-off, to the air by evaporation from the surface of the soil or by transpiration





by plants. The loss to the air is called evapotranspiration. Studies made of this phenomenon in Toronto<sup>1</sup> illustrate certain features of the Toronto climate.

The accompanying graph of moisture relationships of the climate of Toronto summarizes the supply and need for moisture. Potential evapotranspiration is the amount of water that would be transferred from the soil to the atmosphere by evaporation and transpiration if it were constantly available in optimum quantity. From these calculations, 10.9 inches of rainfall are lost as run-off. (Measurement of actual run-off in the river has only been made for a few years but the results are in accord with this computation). For about three months, however, this is accumulated as snow and runs off in the spring flood, as the flood hydrographs show. For the late part of the summer there is an actual shortage of moisture amounting to a deficit of 2.5 inches.

The climate is beyond control but the run-off and stream flow may be regulated better to serve the inhabitants of the watershed. The small flow in the streams in summer is inadequate to the requirements of recreation, to maintain the aesthetic value of the river and certainly inadequate to dilute the sewage carried in the lower parts of the river.

## 7. Land Use

The Don Watershed is unique in the extent to which the land is urbanized. About 15 per cent of the area is built up, 6 per cent of the total area is within the Toronto City limits. In addition to the built up areas and the purely agricultural land there is a broad belt of land which might be termed the "rural-urban fringe" of the city. This belt

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1.

The Ontario Research Foundation, Mr. L.J. Chapman and Mrs. M. Sanderson quoted in "The Don River System" at the Conference on Conservation in South Central Ontario, Toronto, November 1946.





includes large areas used for recreation, public and private; real estate subdivisions on which there is neither farming nor building; specialized forms of farming, market gardens and greenhouses; and small holdings which serve a dual purpose.

In addition to the land use peculiar to the fringe of a city, there are, even within the agricultural areas, forms of land management which are not strictly farming; golf courses, country estates and hobby farms. Even to the farthest extremity of the watershed, land values are strongly influenced by the large urban centre and are not necessarily in proportion to the agricultural capability of the land. The pressure of population makes the problem of the use of natural resources in the public interest a critical one. The same influence makes their solution more difficult than in real agricultural land.



CHAPTER 2  
LAND SETTLEMENT

1. The Indians

What little can be told of the Don Watershed during the Indian period is necessarily based largely on guess-work. The small amount of evidence existing at present is not likely to be increased in the future as more and more of the area is covered with buildings. Indian graves and traces of Indian habitation have been found in a number of places within the watershed, but on the information available it is impossible to say what period they represent or what tribe or tribes occupied these locations.

The first permanent Indian inhabitants of whom anything is known were Senécas of the Iroquois Confederacy. They settled in the Toronto region after 1666, to protect the hunting grounds and trade routes won from the Hurons and other tribes and to prevent encroachment by the northern nations. Some attempts have been made to connect one of their villages, the Teiaiagon visited by La Salle, with one or another of the Indian sites in the Don Watershed. It is quite clear from French maps and documents that Teiaiagon was on the Humber, near the beginning of the most westerly of the two routes to Lake Simcoe, known together to the French as the "passage de Toronto". It has been argued that one of these two trails ran directly from the Bay behind the peninsula, the "Presqu'isle de Toronto", to the site of Holland Landing. Such a trail very possibly existed even then and followed approximately the line of Yonge Street, but it was not one of the two portages in common use and marked on various French maps. These led from the Rouge and the Humber, near their mouths, to the east and west branches of the Holland and did not cross the watershed of the Don. In later times the "Yonge Street" trail was little used and so badly marked as to be difficult to follow. Indian trails followed the line of least resistance, avoiding wet





ground and very steep grades as far as possible; preferring open pine or oak "plains" to thick bush, and in broken ground often following the tops of the ridges where these took the right direction. Any trail along the line of Yonge Street would, therefore, take a much more winding course than the surveyed "street", only occasionally corresponding to it, and this was the case in many places with the route used by the first settlers. Possibly several other winding roads used by the settlers up to about 1825 partly followed old trails connecting the various localities frequented by the Indians. These Indian roads were simply narrow tracks, "such as in America is exclusively termed an Indian path"<sup>1</sup>, with even fallen trees left across them to rot and be worn away by the feet of travellers. However, when regularly used they became well marked and, because they indicated the best route, the settlers often followed them when making roads "yankee fashion". As a result parts of them have survived, here and there, in the modern streets and the present citizens of Toronto often move along lines laid down by forgotten Senecas or Mississaugas.

Most of the trails found by the British when the region was opened for settlement were made by the Mississaugas. But, besides the portage trails, two others were probably more ancient. One of these ran close along the lakeshore and was the origin of Front Street; the other followed the "fall line" of the rivers, crossing them by fords near the first rapid. It usually ran along the foot of the bluffs or ridges which mark the beginning of the higher ground. Within the watershed it is now represented by Davenport Road as far as the junction with Poplar Plains Road. The trail then crossed the valley of Castle Frank Brook and skirted the foot of the "Hill", making its way across the broken ground of Rosedale, to cross the Don below Todmorden. There it climbed the side of the Don Valley and,

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1. Alexander Henry: "Travels and Adventures". Henry is describing the Humber Trail in 1764.





avoiding that of Taylor Creek by a detour to the south-east, left the watershed by the Old Danforth Road (lower part of Kennedy Road).

If there were any villages of the Senecas near the Don, they were too small and unimportant to be noticed by the French writers or map makers. The tribe was never very numerous on this side of the lake. The salmon fisheries of the Don would attract them, however, and the convenience of the flats for cornfields makes it not unlikely that they had a settlement on the lower part of the river. Perhaps the Indian finds made years ago near Broadview and Withrow Avenues marked the site of a Seneca settlement.

The Mississaugas had occupied the Toronto region by 1700 after the Senecas, weakened by their wars with the French, were forced to draw back their outlying settlements. The main Seneca villages had been fortified and consequently were fairly permanent. The Mississaugas had less settled habits and moved frequently from place to place. Most of the Indian finds in the watershed are probably relics of their many camping places and burying-grounds. Many are located in the area of hardwoods found in the southern part of Vaughan and Markham Townships and in the north-west part of Scarborough Township. Like the Senecas, they grew corn on the flats of the rivers and depended on the salmon for much of their food supply. They also caught trout in the Don below Castle Frank, but this river was less important to them than the Credit and the Humber<sup>1</sup>.

## 2. Fur-Trading and Town-Planning 1760-1792

The fur trade and the hope of converting the Indians had brought the French to the Toronto region and

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1. Mrs. Simcoe mentions the Indians catching trout through the ice of the Don. In the Treaty of 1805 which finally defined the boundaries of the Toronto Purchase, the Mississaugas retained their rights to the cornfields and salmon fisheries on the Credit and Humber, but they do not seem to have made any great effort to retain those on the Don.



continued to bring them back whenever hostilities with the Iroquois died down sufficiently to make the area reasonably safe. Fur-trading, however, centred on the Humber and the Sulpician Mission to the Senecas was established at the Rouge. Missionaries and traders must often have crossed the Don, but they do not mention the river and it appears on very few maps. After the departure of the Senecas the traders had the country more or less to themselves, for there do not appear to have been any regular missions to the Mississaugas<sup>1</sup>. With the founding of government trading posts contemporary references to Toronto are more numerous, but are still concerned entirely with the western part of the area. Wherever the Fort Toronto of 1725 was located, it was not on the Don, and even the building of the second Fort Toronto and Fort Rouille in 1750-51 does not increase our knowledge of the Don, though there begin to be references to the use of the Bay as a harbour. After Fort Rouille was destroyed in 1759, English-speaking traders from Montreal, Oswego and Niagara began to frequent the area, in spite of attempts by the British Government to limit trading to a few individuals who had paid for a licence. This was done to control the rum trade in the interest of the Indians and with their approval. The whole of Western Canada had been made an Indian reserve and no settlement was permitted. Arrest and confiscation did not stop the illicit trading. The licensed traders used the site of the small French trading house<sup>2</sup> at the mouth of the Humber. Travellers coasting round the head of the Lake in canoes or bateaux were in the habit of entering the Bay in rough weather, and dragging their boats over the narrow sand spit, either where the Eastern Gap now is or near the east end

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1.

After permanent forts were established there were priests resident in them from time to time.

2.

Possibly this house, built in 1750, was still standing, for it is not reported to have been burnt in 1759. St. John Rouseau's house was exactly on its site in 1793.





of Ashbridge's Bay. Lieutenant Walter Butler with a party from Niagara did this in 1779 and notes in his diary that the French shipping "was wont to lay" off the mouth of Garrison Creek and wonders that the French did not place their fort there instead of farther west<sup>1</sup>. He spent the night at the camping ground on the isthmus and notices some wigwams of the Mississaugas on the mainland opposite. This was the well established camping place, about half a mile east of the Don, which continued to be used until it was replaced by the first village of York. Very probably some unlicensed trading went on here and some traders may have gone up the river to the Castle Frank Ravine, easily reached from the main east-west trail. The possibilities of the region for trading were beginning to be widely known and this was soon to lead to important developments.

Traders from the old colonies were excluded from the Canadian Northwest by the outbreak of the Revolutionary War and applications from Canadians for licences to trade became more numerous. The number of licensed traders was increased and powerful Montreal interests began to urge the government to develop the Toronto route to Lake Huron as it was shorter and less exposed than that by Niagara<sup>2</sup>. A preliminary survey of the area was carried out by Lieutenant Kotte in 1783. The next year, three members of the Northwest Company applied for a grant at Toronto, and Francois de Rocheblave, a prominent French Loyalist<sup>3</sup>, made a proposal for a settlement to Lieutenant-Governor Hamilton. De Rocheblave renewed his application in January 1787 after the arrival of Lord Dorchester for his

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1. The French wished to control the Humber Anchorage and the landing places near Sunnyside, as well as the Bay. Old Fort York was too far east to do this, as was proved in 1813.
  2. It was less expensive than the Ottawa Route, as sailing vessels of larger burden could be used for a considerable distance instead of canoes or boats.
  3. He had been Governor of Fort Kaskaskia on the Mississippi under Hamilton and had been imprisoned for some time by the Americans.





second term as Governor-General. He was prepared, in return for a grant of a thousand acres between the Don and "the old settlement at ..... Toronto", to introduce a number of settlers, open a road across the portage and provide transportation for goods and boats to Lake Simcoe, at rates similar to those in force at Niagara. The scheme appealed to Lord Dorchester, but he was farsighted enough to realize at once that the "Presqu'ile de Toronto" was the most suitable site for the principal town and port on Lake Ontario. He ordered the purchase of the area from the Mississaugas and reserved any decision on the applications until it could be examined and surveyed.

The "Toronto Purchase" was completed by a treaty signed at Carrying Place on September 23rd, 1787. The Indians were paid £1,700, in goods and money, for a tract of land between Lake Ontario and Lake Simcoe which included about a third of York County. On July 7th, 1788, instructions were despatched to Alexander Aitkin at Kingston to go to Toronto and run east and west boundaries of the Purchase. He arrived on August 1st and a few days later attempted to begin his survey of the base line. The boundaries of the tract had not been clearly defined and in his report Aitkin describes the difficulty of fixing the starting point:

"I then desired Mr. Lines, the interpreter, to signify to the Indian Chief then on the spot my intention of beginning to survey the land purchased from them last year by Sir John Johnson and pointed out to him where I was to begin. I requested him to go with me to the spot along with Mr. Lines, which he did, but instead of going to the lower end of the Beach which forms the Harbour he brought me to the river called on the Plan Nechenquakekon (Don) which is upwards of three miles nearer the Old Fort than the place you mentioned in your instructions: he insisted that they had sold the land no further, so to prevent disputes I put it off for some days longer untill a few more of the chiefs came in, when Mr. Lines settled with them that I was to begin my survey at the west end of the High Lands which I did on the 11th of August having lost a week of the finest weather we had during my stay in Toronto."

Lines had come to Toronto with Colonel Butler to negotiate the purchase of the land from Pemitiscutiank (Port



Hope) to the Toronto Purchase. This was carried out a few days later and the whole of the Don Watershed thus became Crown property and available for settlement. For this reason Aitkin did not complete the east boundary and soon after Butler and Lines had left he was forced to stop the survey of the west boundary for fear of further disputes, which could not be settled without an interpreter. On his way back to Kingston he received another dispatch from Deputy Surveyor-General John Collins, containing a plan for the proposed town. Aitkin's report goes on:

"The duplicate of my instructions enclosing the Plan of the Town I only received when on my way back from Toronto. However, I have laid it out in what I considered the most advantageous situation and opposite the middle of the Harbour. I would have laid it out nearer the Old Fort, but then it would have been too near the Point I have marked in the Plan calculated for building a fort upon, rather (more) than half a mile below the Old Fort."

The plan<sup>1</sup> of Aitkin's survey of 1788 has "place fit for a Fort" written at a spot near the site of Stanley Barracks and against the Don, "Nichingquakokonk River navigable for a boat for two or three miles". The "Town Plot" is about 85 chains square and appears to occupy approximately the area between Spadina Avenue and Toronto Streets, extending north nearly to Gerrard Street. It is surrounded on three sides by a belt about half a mile wide, obviously intended for "town commons". This marks the plan as the one just devised in the Land Office and embodied formally in its regulations the following February. This "model" plan was being issued to deputy surveyors that autumn as a standard scheme for a town on a navigable river or a lake. It also forms the basis of the well known "Gother Mann"<sup>2</sup> plan. This was probably made after a

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1. This appears to be No. 6 in the Simcoe Collection. No. 8 seems to be a copy by a less experienced hand, with some changes and omissions. It is very possibly by Mrs. Simcoe. The name of the Don is spelled "Nichingquakonik".

2. Mann signed and dated this map on December 6th, 1788 - the same date as Collins' report. Mann may have been approving or certifying a map copied by someone else. Simcoe obtained a report from Mann on Matchedash Bay in 1792, so the latter had visited the Toronto Route. This plan is reproduced in the Recreation section of this Report.





visit paid to Toronto by John Collins later in the summer of 1788. Collins (who may have been accompanied by Captain Gother Mann, commanding the Royal Engineers at Quebec) was to report on the harbour and on the cost of making a useful road of the Humber Trail - in other words on the practicability of de Rocheblave's scheme. He selected the same site for a fort as Aitkin, but moved the town farther west and placed it north of a base line<sup>1</sup> corresponding very nearly to Queen Street. Large government reserves are indicated to east and west, absorbing a considerable part of the commons, which were slightly enlarged to compensate for this. Beyond the reserves and commons is a broad belt of "Town Park Lots", considerably larger and more numerous than those in the regulation plan. The town plot is also increased to about a mile and a quarter square and is shown in detail. The changes all indicate a place of more than ordinary importance. Had either of these plans been carried out, it would have been many years before the growth of the city would have been of much profit to the owners of the adjacent lands. It would also have been an even longer time than was actually the case before Toronto would have spread into the Don Watershed and the development of the area would have taken a somewhat different course.

That this was not a purely ideal essay in military town planning is evident. A township of "Toronto" is the only one shown north of Lake Ontario and west of the Trent, on a map of the District of Nassau, prepared in 1790 "for the use of His Majesty's Governor and Council"<sup>2</sup>. This township has a frontage of 12 miles, extending about two miles beyond the

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1. Aitkin appears to have run a base line in his survey, but does not show it on his map.

2. This map is signed by Samuel Holland, the Surveyor-General, and also by John Collins. A contemporary plan of the eastern Districts shows several "Towns" on the regulation plans on the Ottawa and the St. Lawrence. Cornwall is the only existing example of this plan but "Johnstown", east of Prescott, was laid out also.





"Toronto River" (Humber). The centre of the front is occupied by a town plot complete with belts of commons and park lots.

Collins' report had evidently decided Dorchester to carry out the Toronto scheme and it was definitely under way by this date. Several grants "at Toronto" - that is, within the Toronto Purchase - were approved by the Land Committee at Quebec and ordered by the Governor in 1788. The details of the scheme were beginning to be known locally, for among the grantees were two partners in the fur trade<sup>1</sup> who had built a house "at Toronto" and one at Pemitiscutiank (Port Hope) and wished to obtain title to their locations. By the beginning of 1790 it was probably known in Canada that the decision had been taken in London to divide Canada into two separate and almost independent provinces. It was probably about this time that Dorchester decided to make Toronto the capital of the new province, as well as the naval arsenal and centre of commerce. It is also about this time that there began to be delays in carrying out the Governor's orders, which may have sprung from a desire on the part of some people to prevent the settlement or at least postpone it and reduce its importance.

The plan was not likely to be popular with the inhabitants of Kingston, Niagara or Detroit. Kingston wished to remain the naval base and to become the capital. Niagara could not hope to retain the seat of the government permanently, once the old Fort Niagara was handed over to the United States, but neither there nor at Detroit was the idea of a by-pass route to the Northwest likely to be viewed with much enthusiasm. The Niagara merchants stood to lose the most and were in the best position, from their control of the local Land Board, to obstruct the carrying out of the plan or to make such changes as would give them a share in any profit to be obtained from it. To this Land Board, set up in 1788 and sitting at Newark

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<sup>1</sup>. Robert Beasley and Peter Smith - Pemitiscutiank is supposed to mean "Peter Smith's Landing".



(Niagara-on-the-Lake), all grants had to be referred for location and all surveys were carried out by a deputy-surveyor acting under their orders.

A survey of the townships west of the Trent was ordered from Quebec in 1790 but for some reason was not begun till the following year. On June 10th, 1791, the day the Constitutional or "Canada" Act was passed in the British Parliament, John Collins wrote to Augustus Jones, recently appointed Deputy-Surveyor for the District of Nassau, informing him of the Governor's order for "one thousand acres to be laid out at Toronto for Mr. Rocheblave; and for Captain La Force and for Captain Bouchette<sup>1</sup> seven hundred acres each, at the same place", and directing him to lay these out and report "with all convenient speed". This letter was entered in the letter book of the Land Board at Newark before the end of June. Jones was apparently at Newark on June 29th. During the summer of 1791 he was engaged on the survey of the fronts of the townships on the north shore, ending with those of "Glasgow" (Scarborough) and "Dublin" (York) "to two miles beyond the Toronto River". Nevertheless, nothing was done about the grants and on June 15th, 1792, Jones replied to Collins:

"Your order of the 10th June, 1791, for land at Toronto in favour of Mr. Rocheblave and others I received only the other day, and as the members of the Land Board think their powers dissolved by our Governor's late proclamation relative to granting of lands in Upper Canada they recommend it to me to postpone doing in respect of said order until I may receive some further instructions."

Translated, this meant that the Land Board was anxious to avoid carrying out Collins' order and, when Lord Dorchester went to

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1.

La Force and Bouchette were both naval officers stationed at Kingston. Both had distinguished themselves during the Revolutionary War and were entitled to military grants. Bouchette was in command at Kingston and later opposed moving the Arsenal to York. His grant may have been partly a sop to overcome his opposition, but he had a special claim on Dorchester, since he had organized the latter's escape from Montreal in 1775 and saved him from capture by his presence of mind. Bouchette was the only one of the three to get a grant at York.





England on leave, they had thought it better to lose the letter until after the Canada Act came in force on December 26th, 1791. Dorchester had been appointed Governor-General of both provinces, but while he was out of the country his powers devolved on the new Lieutenant-Governor of Upper Canada, Colonel John Graves Simcoe, as soon as the latter had taken the oath of office. When the Nassau Board heard of Simcoe's proclamation and that he was already on his way to the Upper Province, they felt quite safe in snubbing Collins with regard to the Rocheblave grant.

But for this ingenious manoeuvring and for Dorchester's absence in 1791, his scheme for Toronto might very easily have been carried so far that it could not be entirely undone. How this would have affected the growth of the region can only be surmised, but there can be no doubt that the settlement planned in 1790 would have differed in some important respects from that carried out in 1793.

### 3. The First Settlement 1793-1815

To understand the spread of settlement in the Don area it is necessary to grasp both the layout of the first town of York and its surrounding territory and the original topography of the lower part of the watershed. Both have long been submerged by the growth of the city and its suburbs. The layout has strongly affected the growth of Toronto, but topography has been largely disregarded in planning and has often been completely altered by draining and levelling.

Middle-aged inhabitants of Toronto can easily remember the time when the waters of the harbour almost reached the base of the Old Fort, when the docks were just beyond the level crossings of the railway and the Don turned west after flowing under the railway bridge and entered the harbour near Fleet Street. They can remember Ashbridge's Bay with a watery marsh at its western end, divided from the harbour by a narrow strip of firm ground on the line of Cherry Street; they may





remember the old mouth of the Don, piercing this strip near Cherry and Carton Streets<sup>1</sup>. But there can be few still living who can really recollect the harbour as it was before the great storm of 1858 finally broke through the neck of the peninsula, forming the Eastern Gap and Toronto Island; although some may perhaps fancy that they recall the Peninsula<sup>2</sup>.

A French map of about 1670 shows an island east of the mouth of the Humber, so it is possible that an eastern channel may have existed about that date; however, all other early maps show a peninsula in this position. The condition of the Bay before the flood of 1804 is shown on the first of the maps illustrating this chapter. That flood broke a new outlet for the Don through the north end of the branch separating Ashbridge's Bay from the harbour, but this remained an intermittent flood channel until a canal was made many years later. Seven or eight small creeks flowed into the harbour between the entrance and the east end. These might be regarded almost as tributaries of the Don, since that river then flowed into the Lake through the Western Gap. However, for the purposes of this report, their drainage areas are excluded from the watershed.

The three largest of these creeks - Garrison Creek, Russell Creek and Taddle's Creek or "The Taddle" - had their sources well above Bloor Street and considerably to the north-west of their outlets. The drainage area of the Taddle bordered the Don Watershed throughout its length. Its course is shown with only fair accuracy on the maps. A small tributary with its source near Gerrard to Yonge Streets, flowed

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1.

The identifications with modern streets etc. in this paragraph are only approximations.

2.

The Eastern Gap had been temporarily opened by a storm in 1853. After 1858 it was never entirely closed. However, bars continually interfered with navigation until the channel was improved in 1882, and this may have led a well known author to believe that he remembered the gap being formed as late as 1872.



south-east and joined the Taddle<sup>1</sup> just above Queen Street, widening the drainage area of that stream towards the east. Further study has also indicated that the courses of the two small tributaries of the Don which rose in Queen's Park differed considerably from those shown on the first map, while on the others they are indicated only.

The divide between the Taddle and the Don may be approximately represented by drawing a line across a plan of Toronto from the south-west corner of Wellesley Street and Queen's Park Crescent to the south-east corner of Jarvis and Gerrard Streets, and from that point to the south-west corner of Parliament and King Streets, although the actual division naturally was now to one side and now to the other of these lines. The area below Bloor Street and above these lines was drained in its western and southern parts by the two small streams mentioned above, fed by springs in the north-eastern edge of Queen's Park and flowing into the Don below the Queen Street bridge. Some of the gullies running down from the high ground east of Parliament Street into the Don Valley also seem to have contained short streams. There was certainly one flowing through the present Zoological Gardens.

The main river below Royal Drive then followed a winding course through the flats, looping from side to side of its valley in ox-bow bends which were frequently altered by the floods. Above Bloor Street the course of the river and its tributaries has been less changed and is fairly easy to trace, though several of the latter now flow partly under ground and some of their upper valleys are fast disappearing under fill to provide space for new subdivisions.

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1.

Parts of the valley of the Taddle are still plainly visible between St. George and College Streets. From College Street to the Bay its course has been reconstructed by comparison of early maps and by partial examination of the existing traces of the hollows through which it flowed.





The camping place of the Mississaugas lay in the bend of the Taddle, near the shore. It was in a grove of oaks and this "oak plain" probably extended some distance to the west and north before the bush became heavier. It was interspersed with swamps, formed by the various creeks, the largest swamp being between Jarvis and Yonge Streets south of Queen Street. The high ground north of the present line of Dundas Street East was covered with "pine plains", extending about as far west as Bay Street and north to the First Rosedale Ravine. East of the river there was also a good deal of pine on the high ground as far as the Forks. The bottom of the valley consisted of flood meadows, mostly covered with large trees, scattered singly or in small clumps. These flats formed easily cleared corn ground for both Indians and settlers and ready-made pasture and hay fields for the latter.

(a) Settlement in the Watershed near the Town of York

Such was the area in which Governor Simcoe was instructed to establish a settlement as soon as possible after his arrival in the Province. The fortification of a post and harbour on the north shore of the Lake was considered in London to be of pressing importance, both for the consolidation of the settlements and for the defence of the colony.

War seemed about to break out between the Mid-western Indians and the Americans; the questions of the international boundary and of possession of the upper forts were still unsettled and there was good reason to think that Canada might become involved in the fighting. The civil requirements of the colony had to be subordinated to the military, for the time at least. It was the not unjustified fear of a possible "fifth column" in the event of war with the United States that caused the adoption of some of the autocratic and aristocratic features of government set up by the Canada Act. Even after the threat of war had passed this preoccupation with defence continued to influence all Simcoe's arrangements for the



# MUNICIPALITIES

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development of the Province. It controlled the laying out of highways, the choice of officials, the granting or withholding of land in particular places and to some extent the choice of settlers.

Toronto had been pointed out to Simcoe as the most likely position for this important post before he left England. As far as concerned the naval arrangements and the communication with Georgian Bay, he was predisposed in its favour. Nothing that he learned in Quebec or at Kingston inclined him to change his opinion that Toronto was the best harbour and the "natural arsenal of Lake Ontario". The choice of a capital was left more to his discretion and further information confirmed the opinion formed in England that this should be located at the "navigable head" of the River La Tranche, which he not long after renamed the Thames.

Those inhabitants of Kingston, who might hope for a share in the administration of the Province, would hardly have been pleased if, when they welcomed the new Governor and his lady on July 1st, 1792, they could have guessed that he proposed to set himself down in the heart of the nearly trackless western forests. They were not in the secret and this possibility did not occur to them. They did their best to persuade the Simcoes that Niagara was a most unsuitable meeting place for the Legislature - no market, no supplies and not enough houses - Toronto was far worse, there was nothing there at all. The uncertainty about the capital added to the grumbling at the appointment of an outsider as Governor and the number of people he had brought with him to "absorb all the lucrative offices in his or Government's gift". Within a short time, however, the general opinion was that the Governor would soon go to Niagara, summon the Legislature there, return to winter at Kingston and settle "at Toronto or some place not far distant from Niagara" the following spring. This proved a fairly accurate prediction, but for various reasons the plan could not be carried out as soon as Simcoe had hoped. He was



unable to visit either Toronto or the Thames that autumn. His trip to Detroit in February and March, when he chose the site of London, made him sure that this was the place for the seat of government. He was quite as enthusiastic after spending four or five days at Toronto in May. He had selected locations for a dockyard, a "garrison" and other fortifications and a town. A sawmill was to be built on the Don to supply the dockyard. The dockyard and sawmill were afterwards placed on the Humber, but the fortifications were carried out much as planned, though in inferior materials.

The townplot was surveyed in June, but the visit of the American peace commissioners intervened and it was near the end of July before Captain Shaw and 200 Queen's Rangers left Niagara to prepare the camps. More of the corps followed a few days later and the final detachment sailed with the Simcoes in the "Mississauga" on the night of July 29th. After landing next day the Simcoes chose a location for their canvas house at the top of the east bank of Garrison Creek Ravine and then walked along the shore to the grove of oaks where the town had been laid out.

The Lieutenant-Governor had decided to name the new post "York", in honour of Frederick, Duke of York, the second son of George III. He seems to have come to this decision by November 1792 and had been referring to the site as "Toronto, now York" for some time. He made the official announcement on August 26th, 1793, at a parade of the Queen's Rangers called for the reading of a general order announcing a success achieved by the Duke in Flanders. The post, town, county and township were inaugurated with due military ceremony and Simcoe now dates his dispatches from "York (late Toronto)".

In one of these, dated September 16th, 1793, Simcoe outlines the principles on which land was being distributed. He first explains that, although York (late Dublin) Township was being surveyed on the "general" (standard) plan,





"plan No. 2" was to be retained for the other townships between the Trent and the Humber, "to lessen the Expenses of Survey". The chief difference between these plans lay in the disposition of the Reserves and sideroads. In "plan No. 2" there are sideroads every half mile, with only two lots of 200 hundred acres between them. In the improved "general" plan the sideroads come every mile and a quarter, with five lots between. In both plans the base line is run approximately east and west, a short distance from the lake. The concessions were laid out parallel to this base line with a depth of  $1\frac{1}{4}$  miles and numbered from south to north. In Scarborough where the shore trends considerably to the south-west, the base line at the west boundary is more than five miles from the lake and four partial concessions had to be inserted, lettered from north to south, A to D. In York there was only a small area of "broken fronts" between the base line (Queen Street) and the shore of the bays and lake <sup>1</sup>.

Simcoe evidently expected the whole of York Township to be laid out on the "general plan". He goes on to explain that, since it was intended that the "military communications" (Yonge and Dundas Streets) were "to be carried as straight as possible", it was intended to make these the boundary of two townships, or at least to use them as base lines and lay out concessions on either side and settle the lots along these roads only with bona fide settlers. It was intended to make no reserves along these roads but to reserve more lots in the back concessions in compensation. Special considerations, however, led to some deviations from the general plan in the case of York Township. Simcoe's explanation of these to Lord Dundas seems to indicate that he expected some criticism and he explains that the council had thought it

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1. Sometimes the base line was carried through two townships, even when the shoreline interrupted it in places - e.g. Hope and Hamilton Townships.



"expedient to reserve the whole of the Broken Fronts (between the Don and the Humber<sup>1</sup>) for Garrison purposes as well as to prevent the scattering of the Inhabitants in such situations as their Fancy or Interest might induce them which would ever prevent that compactness in a Town, which it seems proper to establish; two or three of the front concessions are therefore granted in this Township and the reserves will be made in the back lands, which in reality are far more valuable for agricultural purposes"<sup>2</sup>.

It is not hard to detect the influence of the Executive Council in these decisions or in the subsequent arrangements.

Simcoe was by now convinced of "the probability of the Seat of Government of this Province being for a time established at York; and the almost certainty of that port becoming a flourishing mart of trade"<sup>3</sup>. However, he provided much less space for the civilian town than had been contemplated in 1788. The plot was laid out in the reserved broken fronts. By moving the eastern limit nearer the Don, it was possible to lengthen the frontage, for it was certainly expected from the first that the town would spread west as far as the Military Reserve (Peter Street). The public reserves, however, were not carried above "Lot (Queen) Street"; the commons were omitted and the town was thus limited to a depth of from a quarter to half a mile. The whole broken fronts between the town (Parliament Street) and the Don were reserved for government purposes, probably for the navy yard, and this reserve was soon extended to include the south halves of the

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1. Simcoe says simply "the whole" but those east of the Don were granted with the corresponding lots.
  2. Simcoe to Dundas, "York (late Toronto) September 16th, 1793": Simcoe Papers Vol. II. The paragraph dealing with the military roads was published in the Ontario Archives Reports.
  3. Simcoe to General Clarke (Acting Governor-General), Navy Hall, 24th July, 1793.





200-acre lot west of the Don and the first two "Park Lots"<sup>1</sup>. In the first survey no Park Lots are shown, the 200-acre farm lots being carried right across the first concession behind the town. Before long, Lots 17-32 were divided lengthwise to form 100-acre Park Lots, with a frontage of 660 feet on Lot Street and running back to Bloor Street.

This layout limited the immediate growth of the town to half or one-third the area contemplated in the original schemes. The reserves blocked it east and west, especially towards the Don and any further growth would have to be made to the north and onto land in private ownership. The leading men of the Province were still showing a marked reluctance to interest themselves in York or to accept the necessity of moving there. They still hoped that the idea of making it the capital would be given up or at least postponed. The only attraction the place could hold for them was the possibility of obtaining land which would be likely soon to become valuable. Their influence was probably responsible for the contraction of the public reserves and the omission of the commons. The latter seemed needless in a country that followed the frontier custom of "open range"<sup>2</sup>, and the mile-square town plans seemed ridiculously large except to those who envisaged a great city at Toronto. The attempt to overcome this reluctance to settle at York is even more plainly visible in the terms on which the town lots were granted. Anyone could obtain a free town lot

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1.

The purpose of this reserve is not certainly known. It may have been part of the "reserves of great extent ..... for Timber", which Simcoe mentions to Dundas in the Despatch of September 16th, 1793. If so it was intended to supply the contemplated sawmill and dockyard on the Don, as the much larger reserves on the Humber did the sawmill and shipyard actually set up there. However, Mrs. Simcoe always calls it the "Government Farm", which suggests that her husband intended it as a farm and woodlot in connection with the Government House or "Palace", which he intended to build at the foot of Parliament Street. This gave its name to "Palace" (First called King Street and now Front Street E.). Simcoe intended a Legislative Building to be erected farther west, but when two wings of the "Palace" were built after his departure, they were used as a Parliament House.

2.

"Open Range" is described later in this chapter.



who would build a house on it within a year, and with each town lot went the right to a 200-acre farm in the vicinity. A limited group of officials, members of council, military officers and so forth could also receive, "at pleasure", a 100-acre Park Lot each, and it was frankly stated that this was intended as an inducement to build in the new town. These "Parks" were to serve their owners as home farms and woodlots, in the same way as the original 50-acre town parks, but their larger acreage and very limited number greatly increased their potential value.

Lord Dorchester had returned to Quebec in September and this automatically curtailed Simcoe's powers, though in his civil capacity he still had a large, if ill-defined, degree of independence. Dorchester must have been annoyed at finding that his directions regarding Toronto had been disregarded almost completely. He appears to have written a rather critical despatch asking for information, particularly with regard to the military reserves and the placing of batteries. Simcoe's reply, dated December 2nd, 1793, is obviously intended to be conciliatory in tone, but can hardly have seemed to Dorchester entirely frank. He reports:

" ..... in respect to the Progress of Population and Agriculture on the North Side of the Lakes, and how near they approach Toronto ..... in the course of the year many grants have been made ..... but ..... in general few emigrations have taken place ..... ".

It seemed unlikely that many more would follow until summer. He then gives an optimistic account of the advance of the Yonge Street settlement and goes on, evidently in reply to a particular criticism,

"The Town of York has been laid out on the Personal Inspection of the Council as appeared to them, in the most proper manner and situation, ..... ".

After repeating his statement to Dundas that the whole broken fronts had been reserved and that this was necessary also in order to keep the town compact, he says that all possible sites





for batteries are included in the reserves. He remarks that

" ..... no reserves for military purposes have been marked on any Plan, I have ever received from Mr. Collins"<sup>1</sup>.

This last remark gives the clue to the misunderstanding. Dorchester was assuming that Simcoe had the "Gother Mann" plan before him and Simcoe, who had never seen it, could not understand that he had placed his town in Dorchester's military reserve and greatly curtailed its extent in the first concession, to say nothing of completely suppressing more than half the town plot and all the commons. Both governors were thinking in terms of the future, but Dorchester's was the longer view, and this was ultimately justified to a great extent by events. He did not favour the scheme for a capital on the Thames and was obviously annoyed to find that things had gone so far at Toronto before his return. His answer to Simcoe's report stresses the need for careful planning at York, for broad streets and squares, and advises Simcoe to consult "the respectable People" and co-operate with the Council and the Assembly. Later he vetoed Simcoe's plans for fortifications on the ground that the money available was more urgently needed elsewhere and even seems to have allowed himself to be persuaded that the Navy Yard had better remain at Kingston<sup>2</sup>.

To some members of the Executive Council, the plans of both governors seemed visionary in the extreme. They could not believe in the projected city and were highly amused by Simcoe's schemes and building regulations. They were ready to support him against Dorchester, since he was on the spot and could be directly influenced, while Dorchester was in more

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1. Simcoe Papers Vol. II, December 2nd, 1793. Simcoe is obviously replying to a letter which is not printed in the Simcoe papers.

2. The refusal to authorize the batteries and the withdrawal of the Rangers was due to the threat of war. Some of the high-ranking naval officers were opposed to the York Navy Yard. Dorchester's opposition is reported by the Duc de la Rochefoucauld-Liancourt, who may have misunderstood what he heard from the Governor.



direct contact with the traders at Montreal. They could no longer hope to block the Yonge Street route, but still hoped to postpone the movement of the Government to York.

Dundas may also have regarded the latter as a temporary expedient. He approved much of Simcoe's plans for York, including Yonge Street, but insisted on the reservation of glebes in the front townships of York County and on the occupation of the site of London.

These disagreements and cross-purposes had a definite effect on the development of Toronto. Had either of the governors had a fairly free hand in carrying out his plans, or had they been in agreement, the settlement would have progressed more rapidly.

With the arrangement of lots completed, regular settlement of the township could begin and the first official distribution of farm locations took place early in September, 1793; but it is probable that some settlers had already received promises of certain locations and one or two may have already "squatted" on the lots they hoped to obtain. Only the first three concessions from the lake were available as yet. The survey of the fourth had not been completed and the arrangement of lots in the northern part of York Township was to be entirely altered by the location of Yonge Street. The Don Watershed includes only one farm lot in the first concession east of the river and this was granted to John Scadding. Lot 17 along the west bank was left vacant for the time and the assignments of the first two Park Lots were soon revoked and the reserve set up. The first improvements on Park Lots 3-14 were outside the watershed and most of the land granted in 1793 west of what is now Yonge Street, in the three concessions "from the Bay", went to the favoured owners of Park Lots or to other inhabitants of York. In such cases the time limit for settlement duties was not strictly enforced and there were very few resident settlers in this area till much later. However, a





"Mr. McGill" was improving his lot at Bathurst and Davenport Road.

Like much of the land in the south part of York Township, these lots were light sandy soil and, as Simcoe had pointed out, not much in demand among actual farmers. The lots east of Yonge Street in the area called "on the Don" proved more attractive and several resident settlers applied for lots in this part of the second concession. To equalize the river frontage, the lots "on the Don and Humber" were laid out east and west. This arrangement affected the land between Yonge Street and Woodbine Avenue from Bloor to St. Clair Avenue and all the land east of Yonge Street between St. Clair and Eglington Avenues. The "fronts" of these lots seldom actually rested on the river and this, with the unusual system of numbering, led to a good deal of confusion about boundaries. Sergeant John Coon applied for Lot 19 "on the Don" in the second concession and was assigned Lot 18 "to the river", perhaps because he had mistaken the number of the lot he wanted. Captain George Playter and three of his sons received lots on the river.

John Coon built the first house in the Don Watershed. He started it directly after receiving his assignment, or possibly even before, for it was ready for roofing by September 11th, 1793. The house was "under a hill of pines" and if it was on Lot 18 was probably on the flats below Binscarth Road near the brick works. However, since Coon was quite uncertain where his lot ended, his house may have been farther<sup>1</sup> to the east or south.

The next settlers to build on the Don were the Playter family and the second house on the river above Bloor

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1.

See the account of Skinner's Mills in the sub-section on Mills, 1794-1824. If Coon's grant had really been "to the river" it would have included about one-quarter of Lot 13. Coon seems to have believed that his property included the river or at least the "mill privilege".



was John Playter's near Broadview Avenue<sup>1</sup>. His brothers probably improved their holdings at about the same time. Their father, George Playter, Senior, had been given a lot in York and a Park Lot<sup>2</sup>. He probably built on the town lot at once, but showed less interest in his "farm on the corner of Queen and Yonge", preferring the river meadows of his 200 acres on the Don (No. 20, Concession II from the Bay), though most of the rest of this lot was taken up by the ravine of Castle Frank Brook and the gullies and knolls of Rosedale. Captain Playter built his house on the eastern edge of these hills, looking across the valley past the Sugar Loaf Hill to his son's house on the opposite height.

Some fifty years later, "an old farmer on the Don", who can hardly have been anyone but John Playter, had a clergyman to dinner and entertained his guest with reminiscences of the early days of the settlement. He told him how he had built the second house on the river, how the Governor then lived in a canvas house, and how the Loyalists had been allowed to draw flour from the Commissariat stores "as it could not be got elsewhere". He also talked of his father's lot on "King" Street and of the hundred-acre "farm" at Queen and Yonge Streets; how much its value had increased and how he or his father might have settled there; "but he selected the banks of the Don ..... as being better land". The Reverend Mr. Lillie's

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1. All the published accounts agree in placing John Playter's house opposite his father's, but actually he was granted Lot 17, north of Coon's, between Bayview Avenue and Yonge Street. The lot (No. 11) at Broadview and Danforth belonged to his brother James and the next lot north (No. 12) to his brother Eli. Some exchange seems to have been effected and John may have shared his house with James, who seems to have been unmarried in 1793. Eli Playter continued to live in York for some years, where he kept an inn.
  2. Park Lot No. 8, on the west side of Yonge from Queen to Bloor and town lot No. 9 at George and "King Street". The "King Street" of 1794 was the present Front Street East. About 1796 the names "King", "Duke" and "Duchess" were all moved one block north and the first "King" Street became "Palace" Street until 1866.





John Scadding's  
first house and  
bridge over the  
Don, 1793 (Queen  
Street). From a  
sketch by Mrs.  
Simcoe.



Loghouse on Dawes  
Road — built about  
1815.



Old house at  
German Mills — a  
type of 1820-30.



Combined barn and  
stable near Don  
Mills Road. A type  
often used before  
1835.







somewhat confused recollection of these reminiscences was given to the public a few years later in a lecture he gave at the Mechanics Institute in 1850. His anecdote, further garbled by his hearers, started the legend of the man who refused a mythical hundred acres at "King and Yonge" because it was a poor farm<sup>1</sup>. This story was to be often repeated in the next hundred years and used still to crop up a few years ago.

(b) The Simcoes and the Don

The Don Valley was a favourite haunt of both the Simcoes from the first. In the evening of the second Sunday of their stay in York, after attending the first recorded church parade at the Old Fort, they were rowed down the Bay "to see a creek which is to be called the River Don". They passed through the old mouth into Ashbridge's Bay, through the marshes and for a mile up the river to the point where the high banks of the valley began. Just a month later they took the same trip again and this time pushed on, with some trouble, as far up as Coon's farm. Mrs. Simcoe landed to watch him make shingles with the frow "by splitting large blocks of pine into equal divisions". As the boat passed under a fallen tree, they noticed "a very bold Point just above ..... The Governor talks of placing a canvas house on this point for a summer residence." This led to the idea of taking up 200 acres in the name of their small son, Francis, and building a house on it in fulfilment of settlement duties, to be used as a retreat for the family while

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1.

No-one was ever offered more than one acre at King and Yonge Streets, which did not intersect until after 1800. None of the thirty-odd assignees of Park Lots are on record as having refused their original assignments, though there was a good deal of shifting and exchanging of ownership before the lots were patented. Mr. Lillie spoke as if it were his informant who had owned the lot on "King" Street "and had the choice of the whole neighbourhood for a farm, including the present site of the (1850) city". But none of the patentees of Park Lots were farmers on the Don within three miles of Toronto in 1850 and the City had not yet covered the Park Lots. Lillie had just referred to the second sale of part of Captain Playter's Park Lot as taking place before 1823. The captain was the only Playter to patent a town lot. Lillie's lecture is quoted in W.H. Smith's "Canada Past, Present and Future", 1851.





they lived at York. The land selected lay north of the reserve beside the Don, known as the Government Park. It extended for half a mile along the allowance for the Second Concession road<sup>1</sup> (Bloor-Danforth), south of Captain Playter's farm. The western boundary was at Parliament Street and the southern near Carleton Street.

A spot for the house was chosen at the end of October, before a picnic dinner of wild ducks roasted at a large fire. It was on the highest point of the ridge, or series of knolls, that almost closes the opening of the first or "Castle Frank" ravine. Clearing and hewing of timbers was started that autumn, and during the early winter of 1794 Mrs. Simcoe was often at the Don. Her descriptions and sketches give us a clearer picture of the valley at this early period than can be obtained from any source before 1820. She sketched Scadding's cottage and the first Don Bridge, drove up the river on the ice and watched the Indians fishing in the river and Mr. Talbot skating on Ashbridge's Bay. A thaw in February which spoilt the sleighing and was followed by severe cold put an end to drives to the Don, and thanks to the miry trails of spring we have no account of the freshet.

Mrs. Simcoe left York in May and was away for 18 months. The Governor had been ill just before her return, but as soon as he was sufficiently recovered they walked on the ice to Castle Frank to see how the work was progressing. It had evidently been interrupted during Mrs. Simcoe's absence and the house was hardly more than begun. A picnic dinner of venison "toasted" at a fire proved so pleasant that it was the first of many such parties during the early months of 1796.

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1.

The road allowances bordering the Simcoe property were never opened as roads. The position of Captain Playter's house is uncertain. A stone foundation was found in 1902 when digging footings for the present "Castle Frank House" and it was concluded that this was the first Playter House. If so, the captain built his house on Frank Simcoe's land.



The ladies of York were initiated into the pleasures of winter picnicking, and took to it enthusiastically when once assured that they would not take cold. Most of these picnics were at Castle Frank, since the work dragged in a familiar way. On February 2nd the house was "not yet floored; the carpenters are building a hut for themselves". Later they made themselves a dug-out canoe when they should have been working on the house. The Simcoes visited Skinner's mill, a mile beyond Castle Frank, driving most of the way on the ice in Mrs. Simcoe's "dormeuse", a travelling sleigh with low runners and a movable hood. Even after the ice went out of the Bay on February 9th the river ice was safe for driving until near the end of the month, though it was mild enough for sketching the house on the 18th and a week later was "warm and hazy like Indian summer". Spring rides had already been begun by a visit to a farm on the road to Niagara (Davenport), probably Adjutant McGill's Lot 25 in Concession II<sup>1</sup> from the lake. Here the ground rose suddenly and "a narrow pine ridge made a steep ascent". This ridge probably led to the trail that became the Vaughan Road, and formed part of the divide between the Taddle and Castle Frank Brook. The land route to Castle Frank was now through the swamps and fallen trees of lower Yonge Street and along a pine ridge. It did not pass near the river, so we have no description of the freshet of 1796.

A warm April brought mosquitoes in the evenings; at Castle Frank they were already bad at three o'clock in the afternoon. Mrs. Simcoe had brought Frank there to recover from

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"Mr. McGill's lot, above three miles from here"; i.e. from the camp. The distance, the description and the term "Mr." all apply rather better to "Ensign and Adjutant McGill's" Lot 25 than to "Captain and Commissary" John McGill's Lot 33. Both were crossed by Davenport Road. Lot 25 was at Bathurst Street, Lot 33 west of Lansdowne Avenue. Lot 25, Concession II from the Bay had been assigned to Ensign McGill in 1793 and recommended for confirmation in 1795. However, in July, 1796 "John McGill, Quartermaster" applied for confirmation in Lot 25, Concession II from the Bay, "which he now occupies". This appears to be a completely different "Mr. McGill".





an illness and was camping in a tent pitched inside the unfinished house. Castle Frank proved healthy in spite of the mosquitoes; Frank was soon well enough to improve his estate by planting peach trees and currant bushes.

Castle Frank has often been described but Mrs. Simcoe's brief account of the house is worth repeating. The house was not large and, though the lofty site had suggested the name, there was little of a castle about it. It was "built on the plan of a Grecian temple, totally of wood, the logs squared and so grooved that in case of decay any log may be taken out. The large pine trees make pillars for the porticos, which are at each end 16 feet high." Mrs. Simcoe's sketch makes it clear that the grooves were in upright timbers into which short lengths of squared log were tenoned. Castle Frank thus combined the new-fashioned Greek style with a very old type of French-Canadian construction. This method of building was little used in Upper Canada outside the Ottawa Valley and "temple" houses with lofty porticos were unknown for another twenty years.

When the family returned to York in June, 1796, both Frank and his mother came down again with fever and there was another retreat to Castle Frank. The children went by boat and their parents on horseback, "through those pleasant shady pine plains, now covered with sweet fern. There is no under-wood under the pines, so it is good riding". The finishing of the house had been carried a little further but it was still far from complete. It would have been possible to be fairly comfortable if it had not been for the mosquitoes. Even smoke would not drive them away and there was nothing for it but to take the candle inside the mosquito bar and sit on the bed to read or write the diary. The "whipper wills" were noisy at night, but the deer had gone, scared away by the hammering.

The valley was changing in other ways. Castle Frank was less remote than it had been in the winter of 1794.



Soon there was a new road through the pine plains, down into the ravine and up the ridge to the house. This was so much better than Yonge Street that it was shorter to ride through the town and take this way through the Government Farm when coming from the Garrison. It was only a short walk up the ridge to drink tea with Mrs. Playter. The sides of the valley were still thickly covered with mixed wood, as they are in part today. But there was then a good deal more of evergreen mingled with the hardwoods. At the foot of the bluffs the old river channels were full of cedar and hemlock, but clearings could be seen among the pines at the top in one or two places, and on the flats some of the big basswoods and butternuts had been felled to clear the fields. Walking through the flats to Skinner's mill, they looked like meadows in England, with Playter busy getting in his hay. It took all Mrs. Simcoe's determination to pass over the big butternut tree that Playter had turned into a footbridge, adding a pole that his wife could use as a handrail. Fortunately there was another bridge not far off, so it was not necessary to be frightened every time the river was crossed.

Castle Frank was soon to be deserted. It was after a walk through the meadows towards Coon's that Mrs. Simcoe heard that the Governor's leave of absence had been approved and that the frigate "Pearl" was at Quebec to take him to England on the 10th of August. There was less than a month to make preparations and travel to Quebec. On July 20th Mrs. Simcoe took leave of Castle Frank, made a last call on Mrs. Playter, went to the Garrison for the night and at three o'clock the next afternoon the "Onondaga" sailed slowly out of York Harbour, saluted by all the vessels, carrying the Simcoes on the first stage of their long journey.

Castle Frank was never again to be used as residence. Peter Russell, President of the Council, and his friends used the house as kind of pavilion for picnic parties,





but, perhaps because of the mosquitoes, it was not the custom for these parties to stay overnight. Gradually the house fell into decay. Francis Simcoe had been killed in action during the Peninsular War, but in 1818 the property appears to have still belonged to the Simcoe family. This part of the estate was bought by John Scadding. The house is said to have been set on fire by hunters or tramps. However, enough sound timber remained to build a good-sized lean-to on the Scadding house, designed to accommodate Henry, the youngest son. The site of Castle Frank forms part of the property of St. James Cemetery, but the few graves once to be seen there have had to be removed. The new Don Valley highways will probably destroy the site, but what little is left of the ridge should be made into a public park to preserve the memory of the first "villa" on the Don.

(c) Settlement along Yonge Street

There was no settlement on the Don in the northern part of York Township or in Vaughan or Markham Townships until the summer of 1794, when a few lots on Yonge Street were occupied. In Markham a number of settlers were located in the second, third and fourth concessions at about the same time as the first settlers on Yonge Street, but in Vaughan, with one exception, there was no settlement except on Yonge Street until 1796.

As Simcoe had indicated in his dispatch, those last two townships could not be laid out until the line of the military road was settled. The general location was fixed by the Governor's expedition to Matchedash Bay in October 1793. Until this time it seems to have been assumed that the road would follow approximately the old Humber Trail to the South Branch of the Holland River. Since the road was to be as straight as possible and to form the boundary of two townships, it would have to depart considerably from the line of the trail, but had this route been approved the road would certainly have been much farther west than the present Yonge Street.



The Humber Trail reached the Holland Marshes north of Pottageville. It was the habit of the Indians to drag their canoes for a long way over the floating marsh before they would get into them, for this shortened the distance the canoes had to be carried. The fur traders had continued this practice, even after horses had begun to be used on the trail, instead of finding a better landing farther on. On this trip the Governor and his suite often broke through the thin crust, sinking to their waists in liquid mud. When they were returning, they felt no desire to repeat this experience and were advised by "Old Sail", a Mississauga chief, to try the eastern arm of the portage. By this he meant either the trail to the Rouge, which had fallen into disuse, or an even less used track leading directly south from Holland Landing.

The party set out on foot on October 11th. On the second day they lost the trail several times and it was probably after breakfast on this day that the Governor "had recourse to his compass". According to the account he gave Mrs. Simcoe "when they had only one day's provisions left, they knew not where they were", and proceeded by compass for the rest of the journey, but it seems likely that they soon picked up the trail "known only to a few Indian Hunters", mentioned<sup>1</sup> in Simcoe's dispatch to Dundas.

The party had entered the Don Watershed near Jefferson, crossed the headwaters of the East Branch west of Elgin Mills, and seem to have camped on the night of October 15th on the same branch, probably not far from its junction with German Mills Creek. The next morning they breakfasted on the last of their provisions on the West Branch near Bayview and Lawrence Avenues. A mile and a half farther on they crossed the "4th concession line of the Township of York between lots 20 and 21", and soon after saw the lake. The fact

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Simcoe Papers, Vol. I: October 19th, 1793.





that on this trip they passed quite close to locations where Indian remains have since been found - on the western edge of Richmond Hill, near German Mills and near Avenue Road and Eglinton Avenue - makes it almost certain that they were on an Indian trail; but the Governor's party were evidently not sure where it was leading them and saw the surveyor's line and the lake with considerable relief.

Simcoe was elated by the discovery of this direct route and determined to lay out a straight road from Holland Landing to connect with the sideroad between Lots 20 and 21. Augustus Jones and a party of rangers were sent to run the line from the Landing to York in February, 1794. In May another party of rangers under Alexander Aitkin was sent to lay out lots running east and west like those on the Don, on each side of the road, and to cut the road itself. From Aitkin's reference to "lots 20 and 21 in the fourth concession of York" in 1793, it appears that this concession had been marked off in north-south lots, but it was now decided to begin the east-west lots on Yonge Street at Eglinton Avenue. One hundred and eleven lots were laid out, carrying the survey well beyond the Don Watershed.

William Berczy made his first request to the Council for land for himself and his associates while this survey was going on (May 17th-18th, 1794) and other applications were being received. Asa Johnson, the first settler on Yonge Street, seems to have occupied Lot 29 on the west side in the early summer of 1794. He was soon followed by others. Among these was certainly Nicholas Miller (Lot 34 east of Yonge Street). Sergeant John McBride, Seaman Thomas Kinnear and John Lyons all received their grants in June and July and probably occupied their lots at once. By August 12th more than fifty grants of 200 acres each had been made and permission to occupy or an assignment given for particular lots. These grants extended as high as the site of Aurora, and were



not continuous, but usually located in groups of from two to six settlers. One or two resident owners were to be found in each group and the spacing suggests that some attempt had been made to follow the instructions given by Dundas in his despatch of March 16, 1794,<sup>1</sup> which Simcoe had received on June 14, before many locations can have been given out. Dundas writes; "In order to facilitate this communication you will, of course, give every encouragement for settling those parts of the route which are most convenient as stages for the traders".

About thirty-one of these grants were south of Elgin Mills and, therefore, within the Don Watershed. About sixteen or eighteen of the owners of these grants settled on their lots in person. The remainder were granted to inhabitants of York or to people who had not yet come to Canada. No grant was to be confirmed until the settlement duties were started, and repeated warnings that this rule would be enforced set a great deal of activity going along Yonge Street in the autumn and winter of 1794-95.

On August 12, 1795, "persons ----having had certificates for land on Yonge Street" were told to appear before the Land Board at York to report the progress of settlement duties and have their grants recommended for confirmation, if they could satisfy the Board that they had complied sufficiently with the regulations. Forty-two people appeared in person or by agent; thirty-nine had made some attempt at improvement; there were more than thirty clearings varying from about one acre to fifteen acres; about thirty houses or "huts"<sup>2</sup> had been built and perhaps twenty-five were occupied, some by tenants.

These were the totals for the whole street. Within the Don Watershed there had been some improvement on

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<sup>1</sup>. Simcoe Papers Vol. II.

<sup>2</sup>. Robert Franklin and two others had built "huts" near Richmond Hill.





twenty-six lots and sixteen or seventeen houses; about ten of these were occupied by their owners and possibly a few more by tenants. Between Eglinton and Sheppard Avenue there may have been one house, though the Kendricks, still residing in York were improving their holdings. In the neighbourhood of Willowdale, Sergeant John McBride had built a house, while Abraham and Joseph Johnson had one house between them, but had made a splendid improvement of fifteen acres under cultivation on the other lot. Asa Johnson, south of Thornhill, also had his farm producing by this time and there was another family living near him. The most imposing settlement, however, extended from south of Langstaff to beyond Richvale. Here there were eight houses, six of them inhabited by owners, while one or two of the others may have had tenants installed in them. Nicholas Miller was the moving spirit of the group at Langstaff. He had been in occupation for at least a year. He appeared at the Board as agent for two of his friends and his word evidently had weight with the members, for they recommended confirmation of Nathan Chapman's grant, though no house had been built. In the case of John Barbour's assignment, "it appearing from the testimony of Nicholas Miller that he never made any improvement.....since the date of the Order-in-Council on the 21st June, 1794; and that Balser (Balthaser) Munshaw has built a house and made a considerable improvement", they recommended that the assignment to Barbour be rescinded and Munshaw allowed to patent the lot if he paid the fees. Balser Munshaw had probably gone to Pennsylvania to fetch his family and goods. He returned in 1797 with more than one wagon and had a hard time getting them up Yonge Street.

Only two grants of more than one lot on Yonge Street were made at this time in the Don area. Samuel Cozens received 400 acres on the east side (Lots 38 and 39) and built a house on the northern part at Richvale. There were



four other houses nearby in 1795, three of them occupied. The other grant of two lots (Nos. 49 and 50) was made to William Jarvis, the Secretary to the Council. These were also on the east side and just north of the village. Jarvis had built a house on each lot, but the board were suspicious of the absentee owners in this locality. They recommended "that as soon as it is made to appear that the parties are actually living, or having sufficient tenants on ..... the lots, ..... patents may issue in course but not before." Twelve months were allowed to find tenants. Five houses had been built near Richmond Hill, but from this it would appear that none was occupied.

Such qualified recommendations were often given at this time. With the Governor to back them up the Board was doing its best to be "tough", even with influential people. There were plenty of requests for locations on the "Street" and at this Board several new ones were approved. During the next few years more and more grants were made. A number of the first grantees got their patents in 1797. At this time Asa Johnson was officially recognized as "the first settler on Yonge Street" and given a bonus of 200 acres for this reason. Nicholas Miller received 200 acres extra "as an early settler", evidently a kind of "consolation prize".

Many other lots were patented in the next three or four years, though in a few cases settlers neglected to take out patents till much later. By 1800 all the lots in the Don Watershed on both sides of Yonge Street had been granted. An examination of improvements carried out by John Stegman, D.P.S., in 1801 reveals that about 80 houses had now been built and 89 clearings made. Two or three of the houses were under the prescribed 20 ft. by 16 ft., but 82 of the clearings were apparently over the prescribed ten acres. The remaining seven varied from one acre to ten acres. Most of the original grantees still held their grants, though a few names had dis-





appeared from the lists and been replaced with new ones. The policy of strict enforcement of settlement duties had been relaxed at times, the road work had been slackly carried out, but the number of clearings and houses indicates that most settlers had carried out the rest of their duties.

Below Eglinton Avenue on "the road to Yonge Street", there was little settlement. Up to 1796 Watson Playter's house, near the north-east corner of St. Clair Avenue, seems likely to have been the only one. Some others may have been built before 1800 on the backs of the lots fronting east. After the improvement of the road in 1801 others were built along its line, but settlement was scanty until the "third milestone"<sup>1</sup> even in 1815.

(d) Settlement on Either Side of Yonge Street in York Township

The complaints frequently heard after 1812 that the granting of large areas of land near York to absentee owners was retarding settlement, applied with special force before 1810 to the area east of Yonge Street. South of the fourth concession line from the lake (Eglinton Avenue) the land was of poor quality, but the second and third concessions east of Yonge Street had a heavier soil and were less cut by ravines. Yet few of the Crown and Clergy Reserves were leased before 1813, a sign of slow development, in sharp contrast to the area immediately to the north. In the second concession there were only the usual number of Reserves, but to compensate for the deficiency of Reserves in the front concessions and along Yonge Street, there were about twice as many set aside in the third concession west. The rest of the lots went to prominent inhabitants of York, to military officers and to settlers on Yonge Street. In the Don Watershed

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Near St. Clair Avenue - after 1800 distances on Yonge Street were measured from the market place in York.



only three or four lots were available for actual settlers. However, Joshua Cosens was improving two lots on the western edge of the watershed in 1795. There was some early settlement near Bathurst and Wilson Avenues. Robert Franklin<sup>1</sup> had been allowed to take 100 acres there, after being turned off a lot on Yonge Street as "unsuitable". A Clergy Reserve lot in this neighbourhood was leased about 1800, and there were some other settlers who had no lands elsewhere in York Township. This was also the case on the west side of Dufferin Street below Fisherville. Three or four settlers patented lots or leased Reserves here before 1812. However, William Jarvis held three 400-acre blocks in the second concession between Steele's and Sheppard Avenues. Some of this land he may have sold or leased before 1812, but the Reserves separating his holdings were not rented until after the war. Other sales and leases were no doubt put through in the first years of the century, but there must have been large patches of unimproved land and the clearings were few and scattered.

East of Yonge Street the broken nature of the country produced a somewhat different state of affairs. Here the absentee owners were less in evidence and many lots remained ungranted till after 1800. The second concession east seems to have begun to be settled between 1801 and 1805 and the third concession not long after, but there were still vacant lots and much uncleared land in 1812. There were a few settlers near the southern end of Dawes Road before the end of the eighteenth century, and after the road was opened in 1800 settlement spread northwards in the fourth concession east of Yonge Street. There must have been a number of clearings along the west side of this road before 1812, but since none of the Reserves was leased until after the war they were necessarily scattered.

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1.

This may be the same Franklin, who was farming Peter Russell's farm in 1801.





The first settler is said to have entered Scarborough Township in 1796. He located well east of the Don Watershed, but within a year or so settlers began to locate at the western ends of concessions B, C and D. By 1810 most of the unreserved land in the drainage area of Taylor Creek had been taken up. Captain William Demont had obtained 2,600 acres north of Wexford. This was the largest individual grant in the Don area. A strip two miles wide and seven miles long on the east side of Dawes Road was entirely occupied by Demont's grant and the four Reserve Lots scattered through it. Demont patented his holdings in 1798, but it is not very likely that the settlement duties had been performed on this part of them. No Crown grants could be made in this part of the watershed until the reserves were sold at a much later period, so any settlers in the early years were forced to buy or lease their land. This would certainly prove a bar to quick settlement of the area, as long as there was ungranted land within reasonable distance of York.

(e) The German Settlement in Markham Township

The Germans of Markham had been brought to the Genesee Country in northern New York State by an association of British capitalists among whom Sir William Pulteney was the largest shareholder. The association had bought an immense area of wild lands and the Germans were only one of several groups of immigrants who had been induced to settle on their tract. For a number of reasons the venture was not proceeding smoothly and by 1794 the Germans were dissatisfied with conditions<sup>1</sup> and inclined to move to Upper Canada. William Berczy, the manager of the German group, had particular reason to complain of the treatment he had received, for his employers appear to have refused some of his draughts and allowed him to

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1. They objected to the system of perpetual leases and preferred to own their land.



be imprisoned as a defaulter<sup>1</sup>.

It was probably largely at Berczy's instigation that some of the wealthier settlers (not all of German origin) formed themselves into an "associated company" to apply for a tract near York on which to settle the 60 families already in America and as many more as they could persuade to follow from Europe. The German group seem to have been slightly affected by the megalomania which prevailed among land speculators at this time and which caused a good deal of trouble and confusion both in the United States and Canada. They proposed at first to ask for 2,000,000 acres, but before making his application to the Council of Upper Canada in May 1794 Berczy reduced this to 1,000,000 acres, undertaking to bring in 2,000 families. The Council was justifiably suspicious of promoters who talked in millions of acres and thousands of families and advised Berczy to be content for the present with 64,000 acres for the 60 families he had ready. Even this was to prove beyond the means of the associates to accomplish<sup>2</sup>.

The German settlement in Markham was the only case of settlement by a land company in the Don, for the Canada Company was able to dispose of most of the few lots they obtained in 1823 to purchasers already in Canada. The system was one in common use up to 1797, both in Upper and Lower Canada, and was revived much later with fair success. Much more of Canada was settled in this way than is generally recognized. The practice at this time was for the government to reserve one or more townships for an individual or a group of associates, undertaking to place no settlers in this area except on their recommendation. The promoters paid a flat rate per acre to cover the fees and undertook to bring in a specified

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1. Berczy is said to have been a man of wealth and to have lost \$150,000 on the Markham venture. He certainly ruined himself over the scheme. However, he was usually acting as the agent for others or in company with associates and it is possible that his own share was not so great as is believed.

2. The Articles of Agreement of the Association are printed in the Simcoe Papers, Vol. II.





number of settlers within a given time. Sometimes they were required to build a mill, church and school-house and to open one or more main roads. When these services were not part of their contract with government, the associates often undertook them by agreement with the colonists as an inducement to settle in their township. In return each associate received a grant of not more than 1,200 acres and a 200-acre lot was usually reserved near each family settled for future recommendations. The company could make the best bargain possible with the heads of families in return for the "recommendation" and for transportation to the township, but the patents were issued to the individual settlers and the associates only received title to their own personal grants. If the quota was not filled in time, the reservation lapsed and the company had to be content with whatever grant the Governor was disposed to allow them in return for their expenditure. The arrangement was a speculative one, the profits depending chiefly on the increased value of the 1,200-acre grants which became the absolute property of the promoters. However, since after 1793 the Crown and Clergy Reserves were excepted from these assignments, part of these grants had often to be made up outside the township settled. If the quota was filled within the time limit, further grants were made in proportion to the extra settlers brought in.

These Markham associates differed from some other speculators in being honest and well-intentioned men, who really wished to promote the welfare of their settlers. The 60 families who made up the original quota were to receive their 200 acres free. They were to repay the expense of the move to Canada and for articles and services furnished them on arrival in several interest-bearing instalments. The rest of the lots were to be sold at not less than one shilling and sixpence an acre. The associates were to have a farm of 400 acres each in the area settled. They undertook to build a grist and sawmill, a church, parsonage and doctor's house (the church not



to exceed \$500 in cost) and to pay the salaries of a clergyman and doctor for three years. The doctor was to treat the original settlers gratis while in receipt of his salary.

It is not certain when the Berczy settlers began to move onto their locations, but it was probably in the autumn or early winter of 1794<sup>1</sup>. They had a difficult journey up and down the hills of Yonge Street, often having to use ropes to haul their wagons up the slopes. From Lot 29 they had to cut tracks through the bush to their locations. These lay between Lots 6 and 25 in Concessions II, III, IV, V and VI. The venture soon was in difficulties. Some of the families evidently decided not to move or were slow in coming. Others became discouraged and left the township, some even going off to Montreal in search of work. Berczy did his best and expended much labour and money in attempting to fulfil his undertakings. He seems, however, to have been somewhat impractical and too ready to undertake more than he could carry out. On September 15th, 1794, he undertook to open Yonge Street from Lot 29 to Holland Landing "in the same manner as Dundas Street" and improve the southern part of the road within a year. At this same time he was building a saw and grist mill, building and improving on his own 400-acre farm at Unionville, on his town lot in York and on three lots on Yonge Street, north of Elgin Mills, for three of his associates. He had also to conduct all the business of his settlement and correspond with his associates in New York. In June 1797 he returned 74 "families" as settled on the land, but, as in other cases of the same sort, the Council insisted in a stricter interpretation of the word "family". Twenty-one of Berczy's settlers were unmarried men, some only boys, too poor to have servants.

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It was certainly not before September, except possibly in a few cases. The different months mentioned in different accounts are probably due to the fact that the immigrants moved in small parties; some arriving later than others. There is no doubt of the year. Winter was the best time for travelling.





Four others had joined the group at Niagara<sup>1</sup> and so were not brought into the country by Berczy. He was also told that as he and his settlers were aliens they could not get patents until after seven years' residence. Soon after, the grants to associated companies were rescinded where settlement was not complete and Berczy was refused his lands. He appealed to the Home Government, who referred back his petition to the Executive Council, ordering an investigation and indicating a belief that Berczy had been badly treated. The Council pointed out that he had no personal claim to more than 1,200 acres, repeating the objection to the unmarried settlers and adding that two heads of families had died and 14 left the township, so that Berczy could only claim 33 families. They also criticized the settlers as ignorant, poor and lazy and questioned the wisdom of some of the expense incurred. There was some legitimate ground for criticism; Berczy had certainly not fulfilled his contract and claimed more than he was entitled to, but he had brought in a considerable number of settlers and made a real effort to carry out his undertaking. He had a strong claim to compensation, but none was made in his lifetime. He is said to have left the Province in 1799 and lived in the United States until his death in 1813, but there are indications that he remained in York long enough to complete<sup>2</sup> his naturalization, possibly till 1804. After 1805, Colonel Allan seems to be acting as his agent, as if Berczy had left the Province.

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1. Among these was probably Melchior Quantz, a Hessian veteran. A traditional account has Quantz build the walls of his house "2 years" before the arrival of the Germans - that is in 1792. This is very unlikely. Why a solitary Hessian should "squat" in the heart of unsurveyed forest, far from any known trail and in an area not yet open for settlement, is not explained. Possibly he arrived "2 months" before the Germans.

2. Some later references to "Mr. Berczy" in York may refer to his son David. It is probable, however, that William Berczy designed and built Elmesley House at King and Simcoe Streets, later used as Government House, and was consulted on the design of St. James Church in York. In the announcement of his death in New York, he is described as an inhabitant of Canada.



The failure of the company must have added much to the difficulties of the Markham Germans. They were inexperienced in backwoods life; most of them were poor and possibly the Council was right in calling them ignorant. There is no reason to suppose that they were lazy or shiftless. They managed to hold their ground and before long were in a more comfortable situation. Fortunately the vacant land in the township began to be taken up by settlers of the same type as those in Vaughan and the two groups, having similar origins, easily coalesced into one community.

In the Don Watershed the Berczy settlers were to be found north of German Mills. The area to the south was more sparsely occupied until a later date.

(f) Settlement in Vaughan Township, West of Yonge Street

After Colonel Simcoe's departure in 1796 the land-granting policy of the Government of Upper Canada became much less strict. The grants to Loyalists and their families had already been increased and the scale of grants to officers made uniform, by raising all claimants to the level of one favoured corps. These regulations were retroactive so that many settlers who had unfilled claims to additional lands now took them in the Home District<sup>1</sup>, as near York as possible. Many of these grants were located in Vaughan, for Markham was under a reserve at that time for Berczy and his associates and much of York Township had been granted by 1796. The increased scale of grants allowed individuals to accumulate very large holdings. In the part of Vaughan within the watershed no one person received more than 400 acres together, but these blocks were often separated only by a reserved lot. Captain Richard Lippincott received 1,600 acres, divided evenly between the second and fourth concessions. Four individuals named Cozens

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The Home District then included Halton, Peel, York and Ontario Counties.





received at least 3,800 acres between them, in the II, III and IV Concessions. These grants were not exceptionally large and were entirely justified under the regulations, but with a number of smaller "grants in addition" to settlers along Yonge Street and with the reserved lots they left little free land in this part of Vaughan. Settlement of the area might have been retarded in much the same way as in York Township, if it had not been for the arrival of a group of settlers of a particularly desirable type.

Actual settlement west of Yonge Street may be said to begin with the application made in the name of Jacob Fisher for lands near York, for himself and his family. The application was made late in 1794, most probably by one of the younger members of the family who had been sent ahead to spy out the land. Jacob Fisher was a Pennsylvanian of German origin, who had served and been wounded in the "French and Indian War" nearly forty years before, perhaps with Wolfe or Amherst in the conquest of Canada. Though he does not appear to have taken any active part in the Revolutionary War and did not pose as a United Empire Loyalist, he was evidently regarded as loyal by those who had known him in the past. They endorsed his petition as that of "a good old soldier" and it was warmly approved by the authorities. He was given a generous grant, much of it located near the southern boundary of Vaughan Township in the second and third concessions. In 1796 Fisher journeyed to Canada in patriarchal style, accompanied by his children and children's children to the number of 22 persons, with cattle and sheep and a train of wagons carrying their movable property. The family were exactly the type of settler that was wanted for the region and the authorities recognized this by allowing Jacob Fisher and his son John to take lots on Yonge Street adjoining their grant. Two sons-in-law, Nicholas Cover or Cober and Jacob Comer, were also given lands on Yonge



Street and further lands behind their lots. Comer (or Cummer)<sup>1</sup> settled at Willowdale and for many years was prominent in the life of that part of York Township. The Fisher lots were on the west side at Steele's Corners and their land ran along the north side of the townline to the Third Concession, where the hamlet of Fisherville is now located on Dufferin Street. They had other lands nearby in the Third Concession and here, rather than on Yonge Street, was the centre of their settlement. Here they were joined before long by some of their old neighbours and more "Pennsylvania Dutch" followed after 1800, both Lutherans and Mennonites. They took leases of reserved lots and bought or rented lands from the original grantees. It is noticeable that most of these owners patented their holdings between 1797 and 1805, just at the time the Pennsylvanians were coming to the area. The leases of the reserves also commence soon after 1800, much earlier than most in York Township. Many of these settlers were in fairly prosperous circumstances and could afford to buy land at the low prices then prevailing, but others were willing to lease in order to be near their friends. This was fortunate under the circumstances and allowed a much quicker development of the south-east quarter of Vaughan than took place west of the Humber, where the land owners had more difficulty in finding tenants. It was not long before most of the Third, Fourth and Fifth Concessions were occupied by these admirable people, as far north as Maple. They were excellent farmers, industrious and peace-loving. They formed a somewhat self-sufficient community, but kept up communication with the settlers of similar origin on Yonge Street and in Markham. Until after 1812 their clearings were necessarily scattered in small groups, owing to the large acreage of most farms.

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1. The German names were a trial to the clerks. Comer is also written Gomer, Koomer or Cummer. The last was the spelling finally adopted by the family. The first two generations of Fishers signed "Fischer" for many years.





# ROADS AND MILLS ABOUT 1800

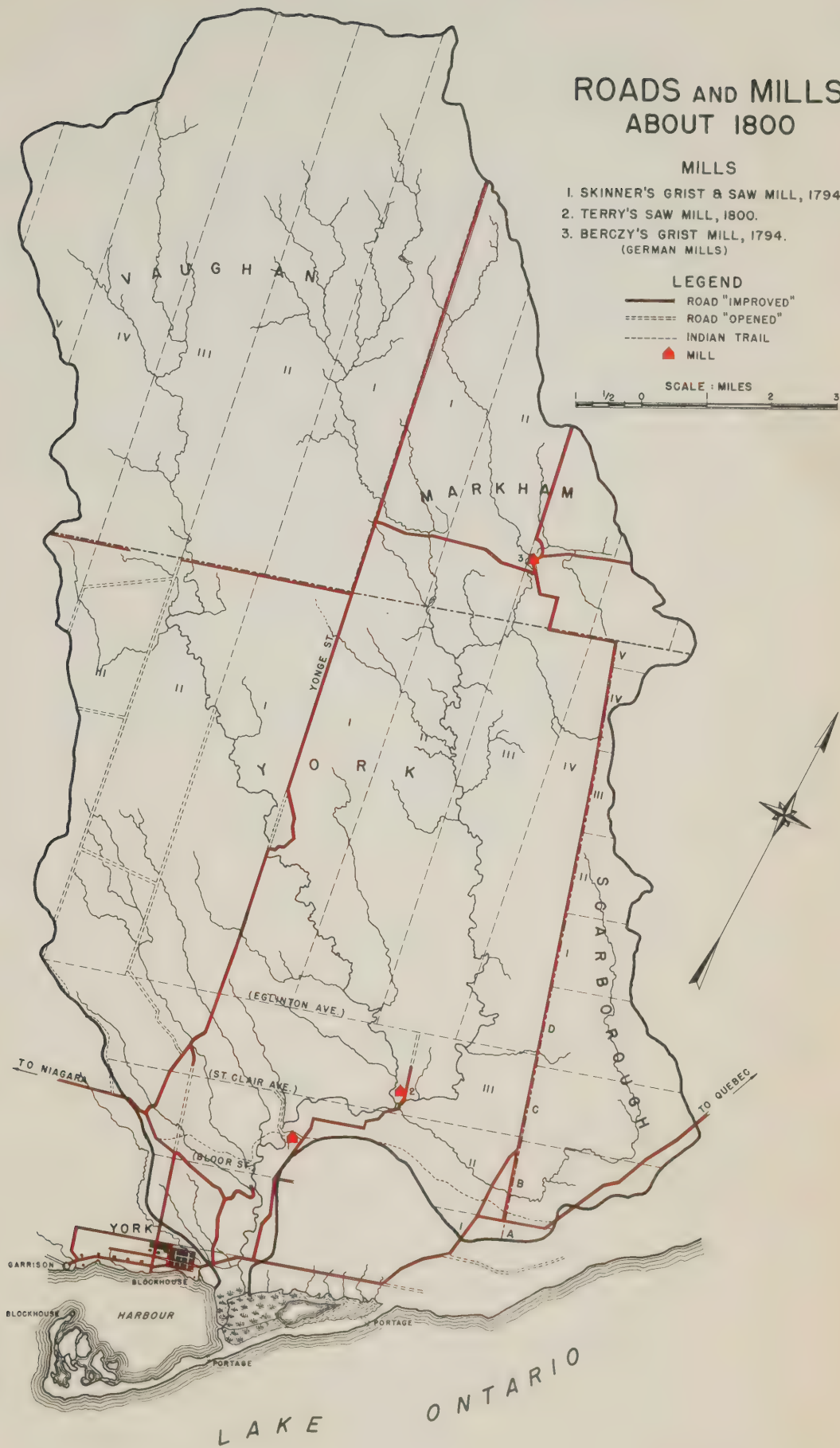
## MILLS

- 1. SKINNER'S GRIST & SAW MILL, 1794.
- 2. TERRY'S SAW MILL, 1800.
- 3. BERGZY'S GRIST MILL, 1794.  
(GERMAN MILLS)

## LEGEND

- ROAD "IMPROVED"
- ROAD "OPENED"
- INDIAN TRAIL
- MILL

SCALE : MILES





In the Second Concession much more of the land was retained by the original grantees for future use and there must have been much unimproved land. This tended to cut off the back concessions from Yonge Street and retarded the opening of the side roads.

#### 4. Roads and Travel Before 1830

The first mention of road making in the Don Watershed is Mrs. Simcoe's note on October 27th, 1793, that "a road for walking is now opened up three miles on each side of the camp." Three miles from the canvas house on the east side of Bathurst Street, opposite old Fort York, would bring the road beyond the Don. Scadding's Bridge must have been built at this time. Mrs. Simcoe sketched this bridge before the burning of Scadding's first cottage in January, 1794, and certain details of the sketch suggest that it was made in autumn after the leaves had turned. This road would connect with the Indian path to Kingston. This was probably improved into something resembling a road before very long, but we have no account of any regular road being built until Danforth's contract of 1798. Mrs. Simcoe does not mention riding or driving beyond the Don until February, 1796, when she visited Mrs. Ashbridge. A map of 1796-97 shows the road "to Quebec", branching north-east of the base line (Queen Street) about two miles east of the Don Bridge.

The road to the west of the camp would also connect with a trail along the lakeshore beyond the Humber. However, a ferry was necessary there through most of the year and on the map just referred to it is the inland track by Davenport Road that is marked as the road "to Niagara". The connection between the road and the garrison and town was probably at first by a trail west of the valley of the Taddle. This would leave Davenport Road near its junction with the Poplar Plains Road and probably reached the shore trail (Front Street) by keeping to the higher ground between the Taddle and





Russell's Creek. It soon became the west "branch" of Yonge Street.

(a) Highroads

(1) Yonge Street

The line of Yonge Street had been surveyed from Holland Landing to Eglinton Avenue by Augustus Jones in February and March, 1794. In May, Alexander Aitkin was sent with a party of the Queen's Rangers to lay off the lots on each side and cut the road. By May 18th, 1794, they had opened four miles north of Eglinton, at a cost of £5. 19s. 7½d. Cutting implied felling the larger trees and some clearing of brush, but little else. No bridges had been built. Such a road must have looked much like a township line in Northern Ontario today, or the right of way of a Hydro power line where it crosses a woodlot. Both these, however, are a good deal wider.

A little more progress had been made before August when the threat of war called the Rangers to military duty on the Niagara Frontier. By this time William Berczy had arrived with his settlers and on September 15th he undertook to lay out Yonge Street "in the same manner as Dundas Street" and complete it within one year as far as Holland Landing. Aitkin had opened the road to Lot 29, a quarter of a mile south of Thornhill. Since this is little short of the point where Berczy's road to German Mills and Unionville leaves Yonge Street, it seems possible that the German settlers had used Aitkin's road to reach their lots and that the German Mills road had already been cut. If so the traditions of the difficulties which they experienced in getting their goods up Yonge Street are fully justified.

Berczy improved the road to Lot 29 and opened it about 12½ miles farther, about a mile beyond Langstaff. Here he was forced to stop, by sickness among his workmen and other troubles. By midsummer it was obvious that he would not be able to fulfil his contract. He had been promised four lots



on Yonge Street, which had been reserved to pay for opening the road, and because he was thought to have done his best to carry out the undertaking, the council recommended that these be sold and the money applied to Berczy's expenses.

Berczy's road, at least as far as Lot 29, was probably much better than Aitkin's. It began at Eglinton and the usual route from that point to York seems to have followed the Poplar Plains Trail. This left the surveyed road allowance close to Eglinton and Yonge Streets and led direct to the top of the Poplar Plains Hill near the present Balmoral Avenue. It crossed the line of St. Clair Avenue some distance east of the present Yonge Street.

Yonge Street remained as Berczy had left it for six or seven months. Then, between January 4th and February 14th, 1796, Augustus Jones with a party of 30 Rangers "opened" the whole road, cutting the trees and making some improvements. Jones seems to have started at the bay and carried the road straight up the road allowance between Park Lots 8 and 9, at least as far as Deer Park, possibly as far as Eglinton. This straight road is shown on D.W. Smith's map of 1796-97. It was very bad in its lower part. Mrs. Simcoe complains of the pools of water and fallen trees in the section below Bloor Street. Between Bloor and College Streets there were not only two small streams to be crossed but some springs in the line of the road gave trouble as late as 1835. Above Bloor the "Blue Hill" which included both slopes of the first Rosedale Ravine and "Gallow's Hill" (beyond the present railway line) were almost insuperable obstacles. These could be avoided by using the Poplar Plains Road, but this meant a long detour to reach the town from the northern settlements. A "new road ..... by the Government Farm" had been opened by the Rangers to Castle Frank for the Governor's convenience before July, 1796. Mrs. Simcoe records that it was quicker to ride through the town and up this road: "the road is so much better than Yonge Street".





Parts of this road can still be traced leading down into the ravine through St. James Cemetery and up the ridge to Castle Frank, as well as a later branch which ran up a gully to "Drumsnab", the Cayley homestead. The lower part of the road ran south from about Wellesley Street, in a winding course, a little east of the line of Parliament Street. When it reached Lot Street (Queen East), it turned south-east and joined the road from King Street to the Don Bridge at right angles.

On December 22nd, 1798, the Acting Surveyor-General, D.W. Smith, "laid before the (land) board<sup>1</sup> two plans for the opening of a new road to lead from the town to Yonge Street, and explanatory thereon - and the President, the Acting Surveyor-General and the Solicitor-General through whose lands part of the road is intended to run not having objected thereto", the plans were ordered to be carried and paid for by the sale of certain lands reserved for the purpose. The following note is appended to this part of the minutes of the Executive Council:

"The Hon'ble John McGill for	90
Adjoining Wm. Jarvis	72
Hon. D.W. Smith	<u>78</u>
Total Dollars	240"

The meaning of these figures is not clear, but whether they were contributions to the expense, assessments of road work or the amounts to be paid in compensation they make it clear that the east branch passed through the lands of these three gentlemen, that is through Park Lots 7, 6 and 5 respectively, and almost certainly followed the line shown on the first map illustrating this chapter, which is taken from the Smith Map, already mentioned. It was a road of connection between the road "to Niagara" (Davenport Road) and the Ranger's Road to Castle Frank.

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1.

Actually the Executive Council sitting as a Land Board.



The western branch was to be a regularization of the trail to Davenport and Poplar Plains Road, already described. This was to run as a straight road between the park lots of President Peter Russell and Solicitor-General Gray. Above Bloor the road would run chiefly through Russell's lands.

That the three honourable gentlemen should not have objected to the plan is hardly surprising. This arrangement brought a principal highway within easy reach of each of their farmsteads. It was a reasonable and sensible enough scheme under the circumstances. It saved the public money by providing two cheap roads instead of one very expensive one, but it is a good example of the kind of fairly harmless contriving which gave the Family Compact a reputation for corruption and selfishness.

In March, 1799, Smith wrote to President Russell suggesting that a "spur" from the east branch to the centre of the town be built, and that Deputy Surveyor Stegman should be sent to explore the Second Concession and the feasibility of Russell's idea of avoiding "the Poplar Plain Hill" and "whether your Honour would choose a road should be opened accordingly with the partys now at work" - apparently survey parties working on Yonge and Dundas Streets. However, the Executive Council determined on June 18th to requisition 50 Queen's Rangers who were "to begin from the Bay at Toronto Street and continue to make causeways and bridges and smoothen Yonge Street with its branches for carriages from there as far as the first lot on No. 1." Lot No. 1 West belonged to the Baron de Hoen who had built a house on it near Eglinton Avenue, the first house of the settlements on Yonge Street. The idea of opening Toronto and Yonge Streets from the bay seems to have been given up and the Rangers started at de Hoen's and were to open the west arm to Queen Street. William Chewett, Senior Surveyor, makes an interesting report on the work in progress on June 22nd, 1799:

"Yesterday I went to examine the Road opening by the Rangers from De Hoens, which will





require three Bridges to the Ravine of Castle Frank Creek, the Bank of which (creek) is not more than fifteen feet, and the slopes for the Road very easy to be made. I think this road when finished as far as the Bridge opposite to the Pinnacle, will be the best in the County. - Here the Road must be made wider, the Bridge new laid, & the banks sloped - the Road from the Bridge to the junction of the Presidents, & that opened by the negroes, must be opened about ten feet wider - from thence to the Presidents clearing, the road will require eighteen Bridges, or Causeways, and if the whole of the Road was opened as the Rangers have done, that is to say, forty feet, and equally well, it would be a Model for Road making to the whole of the Province.

"I am of the opinion that the Bridges & causeways should be made before either cattle or carriages attempt to pass, and pray to have your order on that head.

"The Serjeant of the party informs they are to be relieved, I would wish to make Interest, that the same party might be continued, or such of them who wish to remain, and the number to fill up the Party to be selected by the Serjeant; for men sent in their tour of duty, however fit for guard mounting, may not be so proper for making Roads and Bridges."

The Pinnacle would appear to be the hill on which Admiral Baldwin's "Russell Hill" house was afterwards built and the bridge would be that on the old Poplar Plains Road. Evidently the President had already a track to this from his farm. The "road opened by the negroes" is evidently the east branch connecting Davenport Road with the Castle Frank Road. The negroes most probably belonged to the President and other members of the Council, several of whom are known to have owned slaves at this time. That 18 culverts or stretches of corduroy should be needed between Davenport Road and Queen Street on the line of St. George and Beverley Streets brings out the swampy nature of the country and the number of small watercourses draining into the Taddle and Russell Creek.

Though these roads may have satisfied the immediate requirements of the Government, they were not sufficient for the inhabitants of the back settlements. In February, 1800, some of them petitioned that the owners of land on the road be forced to carry out their obligation to clear the road in front of their lots. They complained that they



could not get their produce to York because of the bad state of the road. The road from York "to Yonge Street" was the responsibility of the township, since the Government had taken the military highway by another route. The townspeople of York, who were also the landowners in this area, called a meeting in December, 1800, to arrange for the "opening" of the "road to Yonge Street" by subscription. They accepted a proposal of Eliphalet Hale to open, "so much of it as may be required at the rate of twelve dollars per acre for clearing it where no causeway was wanted, four rods wide and cutting the stumps in the two middle rods close to the ground, and 7s 6d provincial currency per rod for making a causeway 18 feet wide where a causeway might be wanted." Mr. Secretary (William) Jarvis, Mr. Allan and Mr. James Playter were chosen as a committee. At another meeting the following March, it was decided that the members of the committee take it in turns to make a daily inspection of the work. After the meeting the whole committee went to inspect "that part of the road which Mr. Hale, the undertaker, had in part opened" and provide for a bridge over the Creek between the second and third mile posts - that is Castle Frank Brook.

Hale's work cannot have been good, for when Mr. Stegman made a survey of the whole road from Lot 95 (Aurora) he reported "that from the Three Mile Post, on the Poplar Plains, the road is cut, and that as yet the greater part of the said distance is not passable, for any carriage whatever, on account of logs which lay in the street, from thence to Lot No. 1 on Yonge Street (Eglinton) the road is very narrow and difficult to pass at any time, agreeably to the present situation, in which the said part of the street is." The last sentence evidently refers to the diversion at the hill near the Three Mile Post. The Blue Hills on either side of the first ravine seem to have been taken in the direct line, although they were steep enough to give a great deal of trouble to traffic. A little





farther on however the road diverged to the west and made some use of a slight "draw" or gully to climb the steep rise. Here the road passed through a narrow cut, deep enough for wagons to pass under a log or beam which lay across it. This log suggested the name "Gallow's Hill" which continued in use for many years. When the North West Company began to use Yonge Street as a boat portage to Lake Simcoe, they brought their boats up the Don to the mouth of the first ravine, near Castle Frank; slung them on pairs of large wheels of the kind used for hauling long timbers, and drew them with oxen up the ravine to Yonge Street. To get them up the various hills, they had to make use of crude windlasses. Remains of these windlasses could be seen at the tops of the Blue Hill, Gallow's Hill and other slopes as late as the 1830's. Dr. Scadding suggests that the log at Gallow's Hill formed part of this hauling apparatus, which seems very likely. The settlers sometimes used these contrivances to get a heavy wagon up the hills.

That the by-pass at Gallow's Hill was not the only one on Yonge Street is clearly shown in Stegman's report. There was another between St. Clair Avenue and Eglinton. At Deer Park the road again swung westward along the line of Lawton Boulevard and crossed the creek considerably west of the present road, returning to the line before reaching De Hoen's. By 1824 the road crossed the Mount Pleasant Creek on the dam of a sawmill. The next detour, at Hogg's Hollow, is well known for the northern part of the by-pass has survived as "Old Yonge Street", and even the southern section exists under another name but with only slight changes of line. This southern section ran eastwards across the face of the bluff. It was very bad when Stegman saw it in June, 1801, and continued to give trouble from landslides until it was given up. Stegman's report records two more detours indirectly by referring to the "north" side of Yonge Street. The first of these, at Newton Brook, swung to the west through Lot 22, to make a



better crossing of Wilket (Wilcot) Creek. The second, also to the west, just beyond the crossroads at Thornhill, is mentioned by Scadding and others, and can be traced in part on Tremaine's map of 1860. The road ran down the south slope of the ravine at an angle and crossed the east branch at the mill, some distance above the present road. On the north bank, however, it swung eastwards again along the flats and took the northern hill directly. There were other diversions beyond the north boundary of the watershed. Stegman's report showed that the many landowners had neglected their duty of clearing half the road allowance, especially in the matter of burning the logs and brush. He ends his report by saying, a little unfairly, "that the most ancient inhabitants on Yonge Street have been the most neglectful in clearing the street." Some early settlers had certainly been slack, but others such as Asa Johnson and the Fisher family had done their work well. As might be expected the absentees were the worst offenders.

Yonge Street was now established on the line which was maintained until after 1830. Increasing pressure from those using the road forced the Government to take action to improve and maintain the highway. In 1802 the Upper Canada Gazette prints an advertisement for tenders for building causeways, etc., "on the road to Yonge Street", with almost the same specifications as Eliphalet Hale's. About the same time the magistrates in Quarter Sessions instructed the Overseers of Highways to assess the inhabitants of York for road work on this part of the road. At the next sessions summonses were issued to those who had neglected to perform their share and in most cases were effective. Mr. Secretary Jarvis, however, evidently thought he had done enough and refused to appear, in a rude note expressing his opinion that the road to Yonge Street was no concern of the inhabitants of the town. The offended justices ordered a second summons to be served personally and enforced if necessary, and it is to be hoped that





the Secretary had to do his share.

In 1804, the Legislature passed a bill to provide for improvement and maintenance. In 1807 it was suggested that Yonge Street be "turnpiked". This usually meant clearing out the stumps and large roots and ditching and crowning up the road with the plough. It was probably carried out before long, for traffic on the road was steadily increasing. Greater opportunities for profit and stricter enforcement of road duties were inducing some absentee land owners to move from York to Yonge Street between 1802 and 1812. This is reflected in the numbers of tavern licences issued. In 1805, four taverns were licensed "on Yonge Street", but one of these may have been at German Mills. The number gradually increased and in 1812 eight new licences were issued, bringing the number to about twenty on the street and two in Markham. The war proved the utility of the "military communication". Most of the stores for the naval posts on Georgian Bay went by Yonge Street, Lake Simcoe and the Severn River. The dirt road probably suffered from the increased traffic, but Yonge Street was one of the highways for which special funds were voted in 1814 and by 1819 Yonge Street was one of the best roads in the Province. The traffic was said to have declined since the introduction of steamboats on Lake Erie, but the dust from the many wagons was annoying to a pedestrian. In spite of the revival of the Niagara route, the demands on Yonge Street grew steadily as the northern townships were settled. The road was probably kept up to the standard reached by 1816, but great advances in road construction had been made in England after 1800 and these were being adopted in the United States. Yonge Street was falling behind contemporary standards and more and more complaints of its condition were to be heard after 1825. The next important improvement, however, took place after 1830.

(2) Dundas Street

Dundas Street, both east and west of York, was



opened in 1799-1800. The chief contractor was Asa Danforth, an American from New York State. Danforth's road branched off the present Kingston Road at the city limits, to connect with the present Danforth Road. It usually ran somewhat back from the lake, partly for military reasons, partly to allow the rivers to be crossed by fords or short bridges, and partly to follow the most suitable ground. This often involved steep hills and made the road of little use to settlers along the shore. By 1814 much of Dundas Street through Scarborough was disused and overgrown. The inhabitants had opened the "Front" or "Cornwell Road" by statute labour. The Danforth Road was still officially "Dundas Street" and special permission had to be obtained to allow the road commissioners to apply funds voted in 1814 for "Dundas Street" to the "Cornwell Road". This now became the main highway or "Kingston Road", but the section of the Danforth Road in the watershed of Taylor Creek as far as the Kennedy Road continued to be used regularly, and as settlement spread the rest of this highway was re-opened. It may have been at this time that the road from Niagara was deflected from Davenport Road to the present Dundas Street. Certainly this had been done before 1816. Davenport Road continued to be an important highway as a feeder of Dundas Street and several other roads leading north.

(b) "Bye" Roads

The care of the roads opened by statute labour fell on the townships or counties and was the responsibility of officers elected at "town" meetings, and responsible to the Justices of the Peace at Quarter Sessions, who usually gave instructions and authorized expenditures. A jury was sometimes empanelled to pass on particular cases and in February, 1798, a jury ordered Captain Timothy Skinner, Senior "to open a road on the other side of the bridge over the Don between Cox's and Scadding's farm to your mills in the best manner and most convenient place you can". Until this time the mills had been





# ROADS, MILLS, CHURCHES etc. ABOUT 1825

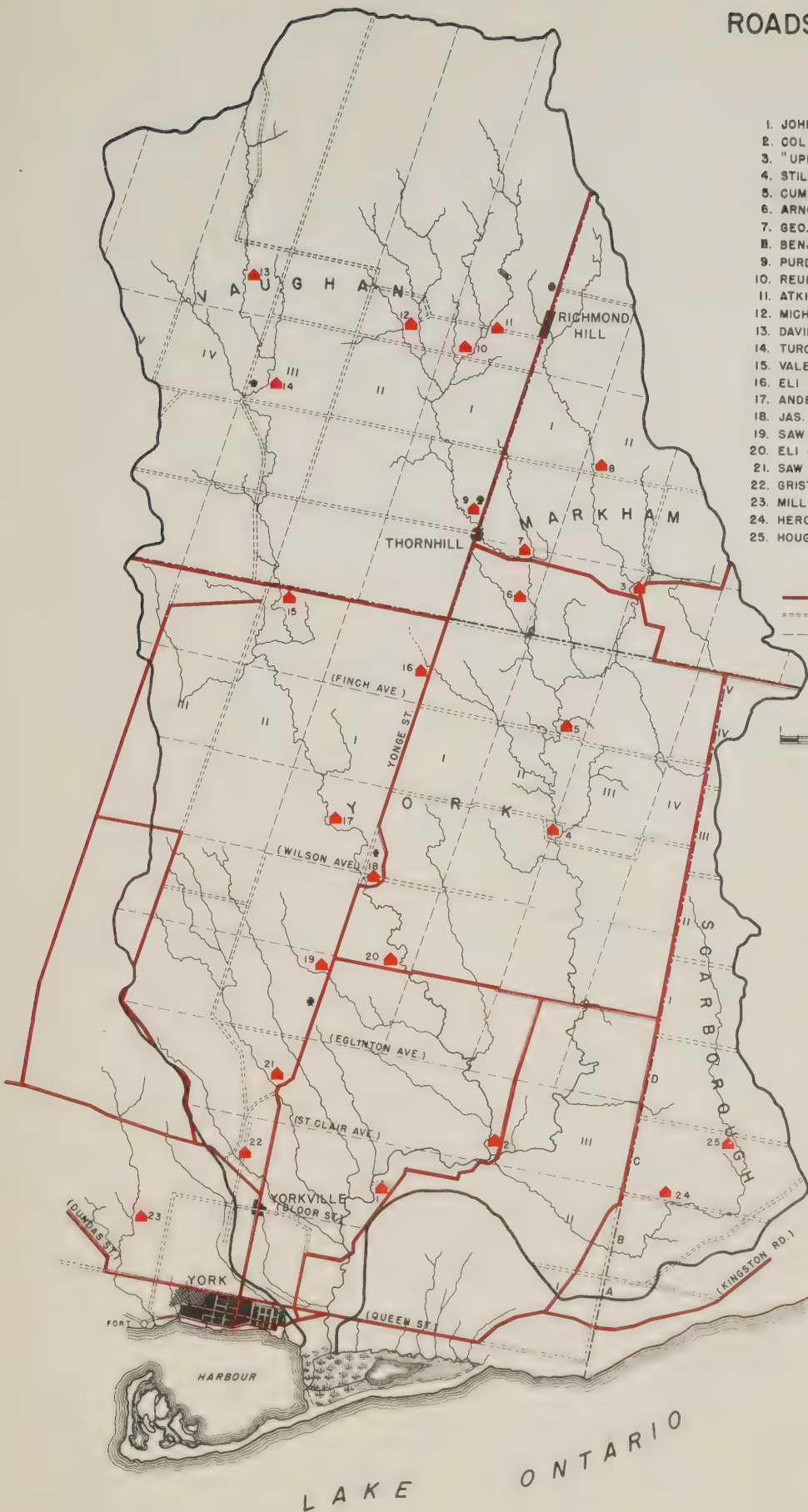
## MILLS

1. JOHN EASTWOOD'S GRIST & SAW MILL
2. COL. ALLAN'S GRIST MILL (GERMAN MILLS)
3. "UPPER DON MILLS (D'ARCY BOULTON'S SAW MILL)
4. STILLWELL WILSON'S SAW MILL c1820
5. CUMMER'S SAW MILL c1820
6. ARNOLD'S SAW MILL b1824
7. GEO. PLAYTER'S GRIST & SAW MILL 1820
8. BENJAMIN AYCAR'S CARDING MILL b1824
9. PURDY'S GRIST MILL 1801
10. REUBEN BURR'S SAW MILL c1820
11. ATKINSON'S LOG GRIST MILL c1820
12. MICHAEL FISHER'S SAW MILL 1820
13. DAVID PARK'S SAW MILL b1824
14. TURCOTTE TRESSER'S SAW MILL b1824
15. VALENTINE FISHER'S SAW MILL b1820
16. ELI PLAYTER'S SAW MILL b1824
17. ANDERSON'S SAW MILL c1820
18. JAS. HOGG'S GRIST MILL c1819
19. SAW MILL ?
20. ELI BEAMAN'S SAW MILL c1820
21. SAW MILL (r "UMFRIES") b1824
22. GRIST MILL (near the toll-gate) 1801
23. MILL on Garrison Creek b1824
24. HERON'S SAW MILL? c1816
25. HOUGH'S SAW MILL 1816

## LEGEND

- ROAD "IMPROVED"
- ROAD "OPENED"
- ROAD ALLOWANCES  
(opened in part by settlers)
- MILL
- CHURCH

SCALE : MILES





reached by boat up the Don to the Sugar Loaf Hill (still to be seen north of the Viaduct) and from that point by a wagon track across the flats, or by an extension of the Castle Frank Road which seems to have crossed the river on a bridge sketched by Mrs. Simcoe in 1796<sup>1</sup>. The new road was the beginning of the "Don Mills Road" which corresponded to Broadview Avenue as far as Todmorden where it turned down Pottery Road to the mills. It was gradually extended as new farms and mills were opened up and by 1830 may have reached as far as the gate of Donalda Farms, where it ended till after 1860.

The first recorded county meeting was held on March 4th, 1799. Overseers of Highways and Pathmasters were appointed for Yonge and Dundas Streets, for the road to the Mills (James Playter) and for the German Settlement in Markham (John Shultz). At the York Township meeting in 1804 two extra pathmasters were appointed, for areas which suggest that Steele's Avenue had been opened to the Humber and other roads opened in the western part of the township. Probably these included part of Dufferin Street, the Vaughan Road, part of Bathurst Street, and Old Forest Hill Road. The number of roads improved and kept up by statute labour was slowly increased and in 1815 pathmasters were appointed for several sideroads both east and west of Yonge Street; their territory would include such parts of the concession roads as had been improved. Similar extensions were going on in Vaughan and Markham, but below Eglinton Avenue the opening even of the concessions was slow and irregular. The area was served chiefly by given roads which disregarded the survey and this was also the case in Vaughan and Markham. As time went on these winding roads were straightened to conform with property boundaries, but the process was not complete in Vaughan in 1824, and in the south of York Township some of these roads are still in use.

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<sup>1</sup>. This sketch is obviously of a different bridge from the one in the sketch reproduced in this report. The location is not given.





The inhabitants of the western part of Scarborough petitioned in 1801 for a road up the boundary between Scarborough and York Townships so that they could reach German Mills. This road, now Dawes Road, was opened by the Government. The other roads in this part of the watershed were opened in the ordinary way as they were needed by settlers.

The second map illustrating this chapter was based on a report and map made in 1824 and ostensibly covering "Roads, Cross Roads, Bye Paths ..... Lanes etc." in several townships near York. Scarborough Township is not covered and the south-east part of York Township is left blank. The map certainly omits a number of trails leading to isolated clearings, sometimes following road allowances partly cleared in compliance with settlement duties, sometimes wandering "cross-lots". In a few cases, where evidence was available, the gaps have been filled in, but the map is not to be considered as complete. However it gives a fairly good idea of the principal roads in use at the time. The two branches of Yonge Street appear on a map of 1818 as straight roads on the line of Parliament and Beverley Streets. Parliament Street has remained in use ever since, but Beverley Street had been closed before 1834 and was not re-opened until after 1850.

Travel on these roads was at first only on foot, on horse-back or, more rarely, in wagons. As time went on wagons were more generally used, but even after 1816 travel by wagon was slow and toilsome and travellers before that date preferred to go on horse-back whenever possible. Joseph Willcocks "had a bad road" fetching President Russell's flour from Skinner's mill in 1801 and when some bran was needed he sent Franklin, the tenant, on the black horse. We hear of wedding parties riding from near L'Ameroux to York about 1808, the bride going pillion behind her father, well wrapped up to keep her gown from the mud. After 1816, the horse-drawn wagon was the usual conveyance. The roads had improved, but they were



still bad enough. Some mud holes hardly dried up all year; in dry weather there were dust, ruts and sand; corduroy was at best a bone-shaking torture and bridges were often washed away by floods. On the back roads stumps and roots added to the jolts. It is no wonder that many travellers walked, like John Goldie in 1819.

Stage wagons preceded the coaches on Yonge and Dundas Streets. The first stage-line was opened to Niagara in 1816 and to Kingston the following year. A line of covered wagons was opened on Yonge Street by 1825. A few years later William Weller and George Playter, Junior, opened a line of improved coaches. Spring vehicles were coming into use but were far from common and "heavy going" remained the rule well into the thirties.

5. Mills on the Don 1794-1824

Two mills were built on the Don in the winter of 1794-5, so close to one another in time that it is difficult to say which was the first. These were the first "Don Mills" at Todmorden and the "German Mills" in the second concession of Markham, south-east of Thornhill. In May, 1794, Aaron and<sup>1</sup> Isaiah Skinner were allowed by the Governor to buy Lot 19, Concession II from the Lake, from the original assignee, on condition that they built a mill on the Don. On July 4th, 1795, the Skinners applied for confirmation in this lot, which the original owner had not patented. This was recommended, the condition being restated in the recommendation, so the mill was presumably finished by that date. It is likely to have been begun in the preceding autumn (for the winter was the usual season for building) and finished before spring. There was no fit location for a mill on Lot 19, which lay north of Captain Playter's, where there was little fall in the river. The Skinners built higher up the river, near the site of the later

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1.

In one of the entries Isaiah is referred to as "Isaac".





mills below Pottery Road. This involved them in a dispute with John Coon, who believed that his Lot 18 crossed the river and included the mill site. The Skinners also believed this and in July, 1796, applied to the Land Board for a decision and to be confirmed in possession of their mill. Fortunately for them, both parties were wrong; the mill was actually on the west end of Lot 13. Coon's lot barely came to the river and, since a grant of Lot 13 had lapsed, the Skinners were able to obtain possession. The whole dispute is typical of the difficulties caused by the sketchy system of marking lots, enhanced by the fact that no road allowance had been cut and by the confusing system of numbering these lots "on the Don" - first from south to north and then from north to south.

Aaron and Isaiah Skinner were sons of Captain Timothy Skinner, a Loyalist who had mills near Niagara Falls. The father probably financed the venture which was a family affair from the first. Before long the builders were joined by their father<sup>1</sup> and their brother-in-law, Parshall Terry, who for a few years played a most prominent part in this part of York Township. It is possible that Terry rebuilt the mill in stone between 1800 and his death in 1808. Mrs. Simcoe's sketch shows a frame mill with the southern section open, probably containing the sawmill. The dam appears to be of the primitive type, made by piling brush and stones into the stream to form a bank, with the water running through and over its crest. A hastily built frame mill might easily need improvements in a short time.

The Don Mills were grist and sawmills from the first. For some years they were the only grist mills between Dundas and Port Hope, but another may have been built near York about 1800 and this may have been the mill on Castle Frank Brook east of Poplar Plains Road. The references to the second

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1.

Captain Timothy Skinner was ordered in 1798 to open "a road to your mills" on the Don. (See section on Roads and Travel Before 1830).



mill are vague and it cannot be certainly identified<sup>1</sup>.

By 1812 the Don Mills were in the possession of Captain Timothy Skinner, Junior, the youngest of the Skinner brothers. He was killed during the war and his widow rented the mills for some years. They were then run for a time by a son of Isaiah Skinner and passed to John Eastwood in 1823. The activities of the Eastwoods and Helliwells belong to a later period. The mills continued to be a family concern, for Skinners, Terrys, Eastwoods and Helliwells were all more or less connected by marriage.

The German Mills were probably running as soon as or earlier than the Don Mills. They were also grist and sawmills. Berczy borrowed the millstones for these mills from the Government stores. Though the mills were built as an undertaking of the company, they became Berczy's personal property and Andrew Heron is mentioned in one reference as his partner. The mills were located on a small tributary of the Don, now known as German Mills Creek, but apparently believed by some people at that time to be a branch of the Rouge River. This led an authority on early Toronto to place the German Mills on the Rouge as late as 1893, although, since he gave the correct lot and concession, a glance at a map should have revealed the mistake. The error has been copied from book to book and appears in a recent and interesting work on York Township, but there can be no doubt of the location of Berczy's German Mills. On March 15th, 1805, the Upper Canada Gazette published the following advertisement:

"To be sold by the subscriber for payment of debts due to the creditors of Wm. Berczy Esquire, the mills called German Mills, being a grist mill and a sawmill, the grist mill has a pair of French burs<sup>2</sup>, and complete machinery for making and bolting superfine flour. These mills are situated on Lot No. 4 in the third concession of Markham; with them

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1. Joseph Willcocks records going to a mill near Yonge Street in 1801.

2. "One pair of French burs" (millstones) appears in a list of Government property in 1799 as being lent to Andrew Heron and Wm. Berczy.





50 to lot 3 and 4 in the third concession, at the option of the purchaser ..... W. Allan. N.B. Francis Smith who lives on No. 14 in the third concession, will show the premises".

It is not known whether the mills were sold at this time, but after this date they were never very successful.

About 1817, Captain Babbington Nolan, "of the 70th regiment", acquired the property with other land nearby and added a distillery, brewery and other buildings, calling the new establishment "Nolanville". The Gazette of March 19th, 1818 prints this item:

"Notice. The German Mills and Distillery are now in operation. For the proprietors, Alexander Patterson Clark, 11th March, 1818."

Nolan's project was unsuccessful and by 1824 the German Mills were the property of Colonel William Allan. Only the grist mill is mentioned in Goessman's report. However, an advertisement in the U.C. Loyalist for April 5th, 1828 gives more details:

"For sale or to be leased, all or any part of the property known and described as Nolanville or German Mills, in the third concession of the township of Markham, consisting of four hundred acres of land, upwards of fifty under good fence and improvements with a good dwelling-house, barn, stable, saw-mill, grist-mill, distillery, brew house, malt house and several other out buildings. The above premises will be disposed of, either the whole or in part, by application to the subscriber. William Allan, York, January 26th, 1828. The premises can be viewed at any time by applying to Mr. John Duggan residing there."

It is not likely that the German Mills were used as mills after this date. Scadding implies that they were deserted in 1832 and ten years later they were completely ruinous. The only trace now remaining above ground is part of the dam on the west end of Lot 4 in the Second Concession. The country people believed that there was a curse or "hex" on the mills, but the curse probably could be expressed in two words - "low flow". Berczy had fallen into the not uncommon mistake of placing his mills on a small stream and they could not compete with others in better locations.

Up to 1815 the grist mill at German Mills was



almost the only one on the Don above the Forks. Nicholas Miller is reported to have built a small grist mill on German Mills Creek near his location on Yonge Street (Lot 34) in 1799, but it seems to have had a short existence. In 1810 the settlers in Vaughan were so anxious to procure another grist mill that they readily signed a petition of David Holly's for a mill site at Weston on the Humber. John Lyons had built a sawmill in 1801 on the East Branch just west of Yonge Street. This was sold to John Purdy in 1815 and replaced by a grist mill. In 1820 Allan McNab put up a sawmill on the East Branch below Purdy's Mill, just north of the road to German Mills. He soon sold this mill site and by 1824 George Playter, Junior, had a grist and sawmill there. At about the same time "a log overshot grist mill, one run of stones" was built south-west of Richmond Hill by a Mr. Atkinson. There were thus four grist mills on the Don in Vaughan and Markham Townships in 1824. In York Township there were at most two grist mills on the Don until James Hogg built his mill on the West Branch about 1817 or 1818. This mill was west of the Old Yonge Street, between it and the present road. This made seven grist mills on the Don in 1824.

The sawmills multiplied faster. By 1805 there were four or five at least and others may have been built before 1815. Two sawmills were set up on Taylor's Creek in Scarborough Township about 1816 and probably one, Dark's, in York Township. John Hough's sawmill was on the south side of Eglinton Avenue, about three-quarters of a mile west of the Kennedy Road. It was built in 1816 and probably lasted longer than the others on this creek. Heron's sawmill was in Concession B, west and south of Hough's. The mills on Taylor Creek suffered from lack of water and were given up fairly early.

Dark's sawmill has been omitted from the 1825 map, since there are no indications of its location. The sawmill numbered 19 is doubtful and the identification of D'Arcy Boulton's and Humfries' sawmills are conjectural. The locations





of the others rest on fairly reliable evidence, the chief source being a return made by John Goessman, Deputy Surveyor, in December 1824. Omitting the doubtful mill, we have 18 saw-mills on the Don in 1824.

Benjamin Aycar's carding mill, the only one on the Don, was very close to the location of Nicholas Miller's early grist mill and may have taken its place. Milling on the Don was only beginning in 1824; the next few years were to bring an increase in the number of mills, but the great period was still more than twenty years ahead.

#### 6. Settlement, 1816-1850

Until after 1812 the number of settlers of British birth on the Don had been very small. Only a few individuals, like John Scadding, had come to the watershed direct from the British Isles. After 1815, however, the number of immigrants to Upper Canada from Great Britain and Ireland steadily grew. Before 1830 a large proportion of these settlers were men of substance, induced to emigrate by the pressure of changing conditions at home. These men were able to buy improved land from the original owners, to build houses and mills and to set up businesses at likely locations. The cash which they paid for their purchases was a welcome addition to the small amounts of ready money accumulated during the war years. Many more of the early settlers or their sons built mills about 1820 or opened taverns and stores. Almost all of the mill-owners of 1824 belonged to families established in the watershed or the town of York or were Canadians from other parts of the Province. James Hogg of Hogg's Hollow was a newcomer, however, and the next few years saw the arrival of many others of the same type, both from overseas and from the United States. The names of these men are recorded in those of the villages that soon grew up or of the roads that ran near their locations. The less prosperous immigrants who wished to settle in the area leased farms on a share system, set up as craftsmen in the



clearances where hamlets were growing up, or found employment on the large farms, in the mills and other new enterprises. A great change was coming over the upper part of the watershed in the 1820's and '30's. The older inhabitants were aware of this. To the Reverend Isaac Fiddler's landlady at Thornhill it seemed in 1832 that she was living in a different country from the one she had known, peopled entirely by unsympathetic strangers. This was an extreme view; the families of 1801 were still very much in evidence on Yonge Street and continued to hold many of their Crown grants for at least another generation. To the younger generation and many of the new arrivals the rate of progress seemed all too slow. They grumbled about the state of the roads, the delay of some owners in clearing their land and the effect of the Reserves in retarding settlement.

As far as the Don area was concerned this last complaint had little justification by 1830. The remaining Reserves were all let before 1820. The Crown Reserves in the watershed were granted to King's College in 1823 or sold to individuals or to the Canada Company within a few years of that date. Many of the College lots were sold before 1835 and, though some continued to be rented for a time, the evidence is that the improvements on these lots were about as extensive as on those occupied by their owners. This also applies to the Clergy Reserves, for good tenants were not hard to procure in this part of York County. A large part of the Clergy Reserves were sold before 1845. Certain circumstances, however, prevented continuous settlement and preserved large stretches of forest. It was the custom to clear only a third or half the farm and to place these clearings on the frontage of the concession roads. For this reason the sideroads often ran through considerable stretches of bush and the presence of occasional unoccupied lots limited the settlement on the concession to separate "clearances" containing from ten to fifteen houses.





These averaged about a mile wide and usually stretched for a mile or less on either side of a "corners", where there might be a tavern and smithy and perhaps a church or schoolhouse. A grist mill generally attracted settlers and stood in a clearance but sawmills were often "back in the bush".

In the north-west section of York Township above Eglinton Avenue, much the same change was taking place at this period as in Vaughan and Markham. The increasing number of mills did something to open the concessions east of Yonge Street, but this part of the watershed remained more sparsely settled and more thickly wooded for many years.

East of the river, below St. Clair Avenue, there was further settlement in the Don Watershed after 1816. During this period the clearings along the Dawes Road began to be almost continuous and by the thirties this area and the rest of the watershed of Taylor's Creek was emerging from the backwoods stage of development. In the First Concession and broken front, John Scadding's cottage long remained the only house near the Don. Scadding had returned to England with the Simcoes in 1796, to resume his duties as land steward on the Honiton estate. He left his York property in charge of young George Playter, Junior, who lived in the log cottage by "Scadding's Bridge". Some houses seem to have been built on the east side of the mill road (Broadview Avenue) even before 1812, and when Scadding returned in 1818 he subdivided the southern part of his property into fairly large lots and built himself a roomy log house on the site of the present gaol. A small group of houses and cottages grew up east of the bridge on either side of the Kingston Road.

West of the Don, in the area below Eglinton Avenue, settlement in this period tended to take the form of country houses or "farms" belonging to well-to-do inhabitants of the town. These usually consisted of a large area of woodland surrounding a smallish patch of cultivation and pasture



in which stood a comfortable house and its group of dependent buildings. North of Bloor Street these houses, though designed with more attention to appearance than the ordinary farm house, were usually more modest in design and materials than the suburban "mansions" on the Park Lots of the first concession from the Lake. There were several of these estates along Yonge Street and Davenport Road by 1835; several others were built in the next ten years. The houses were usually set well back from the road and their clearings and lanes did little to break the line of the cut-over woods, which in the thirties were beginning to be full of second growth.

As time went on these "villas" multiplied and Doctor Scadding lists a large number in his account of Yonge Street in the 1830's and '40's. They have vanished entirely,<sup>1</sup> but have given their names to a number of streets such as Summerhill, Woodlawn and Pricefield. The best known of these houses was "Rosedale", built in 1821 by John Small and sold three years later to Sheriff Jarvis. The Rosedale property was not subdivided until after 1850. The house stood near Rosedale Road across the ravine, east of the bridge over Castle Frank Brook. It was at first reached by a drive which descended into the valley near Davenport Road and climbed up a gully to the house. To avoid the steep hills, Jarvis made a new approach from the south, the present Park Road, bridging the creek and raising an embankment. Somewhat later he opened a lane to the north of the house along the line of Roxborough Street East.<sup>2</sup>

Along Davenport Road the estates were larger. The road takes its name from "Davenport", the homestead of the

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1. One survivor is "Woodlawn", behind the houses of the south side of Woodlawn Avenue. The stucco part of this house was built between 1840 and 1846.

2. Sheriff Stephen Jarvis was a cousin of Secretary William Jarvis already referred to more than once. Samuel Peters Jarvis, son of the Secretary, built "Hazel Burn" in 1824 on his father's Park Lot, some distance north of Queen Street and just south of the Don Watershed. Hazel Burn stood exactly on the line of the present Jarvis Street and was torn down in 1848, when Nelson Street, formerly New Street, was opened through the Jarvis lot to Bloor Street and renamed Jarvis Street.





Wells family, which had replaced Quartermaster John McGill's farm at Bathurst Street. Farther east was "Spadina", built by Robert Baldwin on part of the large Russell-Willcocks estate which had come to his father and uncle through their wives. The Baldwin estates stretched from Bloor to Eglinton and before 1850 there were several Baldwin houses in this vicinity.

It was these large half-developed estates, of rather poor land, that gave casual observers the impression that settlement around York was very backward up to 1840. Even in 1850 the old main roads to York still ran through considerable stretches of woodland. There was, however, a good deal of settlement between these highways, which ran mostly through the interior of the lots rather than across their fronts. That so much land remained undeveloped up to 1850, when the area was already prosperous and when wild lands had been taxed for more than twenty years, seems to show that the demand for this property was not as great as Robert Gourlay supposed in 1817-20.

North of Eglinton the clearings on Yonge Street were already numerous by 1837 and by 1850 the fronts of all the lots had been cleared. The line of farm houses thickened into hamlets at all the crossroads and several villages had grown up in the thirties. In 1850 the intervals of bush between the clearances had grown shorter and fewer. The clearances were not isolated in the fashion of 1830. There was, however, still a good deal of woodland, at least in York Township. The process of filling up was greatly accelerated by the large immigration of the early 1830's. This stopped for a time after 1836, but was resumed in the forties, especially after 1844. Many of the biographies in the second volume of the History of York County begin with the arrival of the family after 1840. These new settlers are often found on farms which had been patented before 1812. They were of many different origins, but there was now a much larger proportion of Irish and Scottish settlers. They had often worked for a time in some other part of Canada



or the United States before buying their farm in York County. As has been already pointed out, this influx of new settlers did not by any means oust the descendants of the original patentees. These were still numerous in the district in 1850, and the newcomers were largely accommodated by subdivision of holdings.

By 1850 the process of settlement was drawing to a close in the Don Watershed, except in the broken country east and south of York Mills. Here the proportion of woodland was still remarkable for more than a generation. Settlement in the watershed cannot be said to be completed until after the railways had been running for some time, but in 1850 the area was well settled and prosperous and the frontier had moved far beyond it.

#### 7. Life on the Don Watershed Before 1867

The life of the Don Watershed varied considerably during the period before Confederation and at least three phases, with short intervening periods of change, can be distinguished. However, the social and economic change which followed Confederation was even more marked than the political, and the alterations in the life of the watershed during the 1870's, '80's and '90's went much deeper than differences brought about by any previous developments. The earlier changes were the fulfilment of the development begun in 1792, and the Toronto region in 1855 was an area of prosperous agriculture and small-scale industry, very like that envisaged by those who first planned the settlement. The opening of the railways began a radical change of conditions, but at first this had little outward effect and the old order was still at its height in 1867.

Quite apart from the epoch-making political changes of that year, 1867 is, therefore, a convenient terminal date for a discussion of early life in the Don Watershed. The process of change, already begun, gained momentum in the next





few years and by 1877 radical differences were already apparent in methods of farming, of manufacturing and of carrying on business. The pace of life had already quickened, however slow it may seem to us today, and the difference could be perceived in all its outward manifestations. Somewhat similar changes had already taken place after the War of 1812 and, even more marked, after the Union of "the Canadas" in 1841. In each case the process of change covered half-a-dozen years or more, beginning a little before and ending a little after the historical event. However, there is a larger measure of continuity through all three phases than is to be found between 1865 and 1885.

The first two phases of this early period may be called the "frontier" and the "backwoods" phase. In the various works on York County they are taken together as a period of "pioneer life" and by far the greater part of the source material used dates from after 1820. In dealing with the whole county this is not unreasonable. The pattern of life did not vary in many essentials and conditions very similar to those in York Township in 1798 were the rule in the northern townships in 1830. However, even on this edge or frontier of settlement life was not exactly the same as it had been thirty years earlier, and the use without distinction of sources dating from 1840 beside those of 1800, with little or no distinction of time or place, tends to produce a confused picture, and this confusion is very noticeable in some of the "historical" advertisements which have been popular of recent years. Owing to the great number of descriptions of Canada published between 1825 and 1850, this period is extremely well documented and the sources are easily accessible. The source material for the earlier phase is harder to come at and is less complete. Some aspects of life such as the methods of farming changed so slowly that they may well be treated as uniform up to 1840, but in most other ways the marked change that followed



the War of 1812 should not be completely ignored.

(a) The First Phase

The progress of improvement was slow during the frontier phase. This was the time of the small clearing, full of stumps; of the little log house, overshadowed by trees and often "two whoops and a holler" from the next neighbour; of farming that aimed chiefly at providing food for the family and was carried on more with the spade or the harrow than with the plough. It was a time when a shortage of deer or salmon meant a lean table; when wolves and bears preyed upon the stock, and passenger pigeons, whose flocks darkened the sky, threatened the little fields of grain; when the way to mill, church or store was a winding trail, almost too rough and narrow for a wagon, and the "highways" were more like windfalls than roads. It was a time of toil and hardship, but even then there were some things that distinguished this area from those not far off and made life in the Don Watershed less difficult than it had been in the frontier settlements of ten years earlier, or than it was no farther away than Darlington Township at that very time. The Government's selective policy made the settler with no more than "an axe, a logging chain and a yoke of oxen" much less the rule in York Township, and even in Vaughan and Markham, than he was in Trafalgar in 1817. It is true that one petitioner urges the fact that he owned one yoke of oxen as qualifying him for a lot on Yonge Street and apparently the Land Board agreed with him. However, most of the settlers on the "Street", and many in other parts of the watershed, brought much more stock than one span of draught animals to their farms. Large caravans like those of Jacob Fisher or David Holly were exceptional only in the number of their wagons, their cows and their sheep. Almost all the settlers in the watershed had owned farms in other parts of Canada or the United States and brought with them the value of this land in stock and stores or, more rarely, in cash. They also brought





with them the experience of backwoods farming acquired in their former homes, and the inexperienced townsman, whether from Europe or the United States, was extremely rare in the York settlements until this phase was over. The Germans of Markham were the chief exception to this rule, but even they were at first an "assisted" colony, able to draw on a common stock and provided from the first with a saw and grist mill. In this respect the other settlers were nearly as fortunate; by 1795 no family had to make the journeys of thirty to eighty miles to a mill necessary in some settlements and hardly any can have had to depend entirely on the hominy-block or the grinding stone, even in their first year of settlement<sup>1</sup>.

The settlers fall into two main groups: the "Dutch" in Vaughan and Markham, whether European or American; and the English-speaking settlers, whether Loyalists or of other origin<sup>2</sup>. The German settlers were separated from the rest by differences of language, manners and religious usage. Though some of the Pennsylvanians were practically bilingual and the Lutherans of this group approached nearer to the other Loyalist settlers in their way of life, on the whole a tendency to "plainness" marked the York County "Dutch" for two or three generations, Lutherans as well as Mennonites. There were well-to-do settlers among them, but there was less distinction in habits than among the English-speaking farmers. The latter included some settlers of the ordinary frontier type, such as Sergeant John Coon, who were skilled in backwoods farming and often energetic and capable, but who had little learning or experience of the more settled world behind the frontier. They

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1. A settler in Darlington Township is recorded to have carried a bag of grist by land to Belleville before the building of the mill at Smith's Creek (Port Hope), and as late as 1801 William Warren Baldwin took the wheat from the Baldwin homestead near Darlington to Port Hope by water - a two or three day trip. - Diary of Joseph Willcocks.

2. There were settlers of Netherland origin from New York State in Scarborough, but these were probably English-speaking to a greater degree than the Germans.



were more numerous on the back concessions of York and in Scarborough and as tenants, than on Yonge Street and near the town. They often preferred a simple way of life, but this was not from any settled conviction and if they kept their farms and prospered they soon changed their habits. Another group consisted of men of more education and business ability, often possessed of some capital. These men had frequently been officers in Loyalist regiments and, in York County as in other settlements, they took the lead in setting up mills, stores and inns and were made Justices of the Peace, held the township offices and officered the militia. This group mixed with the official group in York, though they did not always support them politically, and where circumstances permitted they readily allowed themselves such comforts and luxuries as they could command. At first there was little distinction between the settlers in their mode of life; all were forced into nearly the same pattern; but differences became more marked as time passed. In 1802 only half-a-dozen inhabitants of the Don Watershed in York Township returned as many as one employee in their households, and these employers were almost all millers or innkeepers. Later the number would be rather larger, for "servants" were easier to procure before 1812 than after 1825. Even in these favoured households, however, there was plenty of work for all who were old enough to bear a hand.

Under favourable circumstances a single good season could bring the farm into production and make the family self-sustaining. The records of Abner Miles' store<sup>1</sup> for 1795 to 1796 show Asa Johnson buying first one and then another cream pan to set the milk of his freshening cows, and before long he had butter to trade, while Nicholas Miller was bringing in eggs. If the farm included some river flats, there were hayfields and pasture almost ready made and corn-ground that could be ploughed at once. Wheat would bring a little credit

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<sup>1</sup>In York. Miles had not yet moved to Yonge Street.





at the store to buy salt, ironware and gunpowder and a little cloth or linen if the settler had not yet provided himself with a few sheep and a patch of flax. If wheat was too cheap it could be made into whisky, for which there was a steady demand. This was to be expected in a town that was at the same time a garrison, a port and a depot of the fur trade. There can be no doubt that some settlers had stills, with or without a licence. John Coon obtained a still licence at one period. This, with his earlier large purchases of liquor from Abner Miles, suggests that he kept a kind of public house for customers at Skinner's Mill. However, no record has been found<sup>1</sup> of his licence to keep an inn or tavern.

If the settler and his family were capable, the farm, after a few good seasons, could provide the raw materials for almost all their necessities. A few sheep and a patch of flax would give them cloth and thread. Buttons could be carved from wood or bone, or be moulded from lead like the bullets for their rifles. Hides and deerskins could be tanned or dressed to make shoes, gloves and even breeches, waistcoats or hunting shirts. Caps could be made of fur, and hats or bonnets plaited from straw. "Utensils" (the word then covered all the apparatus of house and farm) could be made chiefly of wood; iron was needed only for the points of spades and ploughs. Axeheads, knives and scythe blades had to be bought, as did a few pots and pans, but the settler could dispense with crockery if he was willing to substitute vessels of wood or bark.

Few settlers on the Don were forced to be self-dependent to this extent. Most could afford to buy some crockery, a little linen, a felt hat and cloth for one best

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1.

This explanation is as probable as to conclude that Coon consumed all the liquor himself. His eldest son, John, may have been involved, but the quantities were large for one family. Smaller amounts were bought by the Coons to drink on the premises and some meals are listed. Otherwise the only Coon purchase is a few yards of "diaper", bought by Mrs. Coon to make towels or a tablecloth.



suit or gown at least. Homespun, however, was in general use. All housewives used the spinning-wheel, even Mrs. Simcoe, and often wove the yarn themselves. In better-off households the homespun was used for work-clothes and blankets, but for some it was the only wear and among the Mennonites and Quakers homespun continued the usual dress for generations. At first all the labour of cleaning, carding and spinning the wool, weaving the yarn and fulling and dressing the cloth had to be done at home. Before long a few professional weavers were to be found in York who wove the homespun yarn in their own houses for so much the yard of cloth, but they were not numerous till after the war.

Where the clearing could not produce a surplus for trade, something could be made from the surrounding forest. Furs could always be sold and deerskins were often in demand. Like maple sugar, deerskin was apt to be too plentiful. There was as yet little trade in firewood, for the soldiers cut their own on the reserves and most townsmen got theirs from their farms. Ashes were perhaps the most reliable product of the woods. The settlers had plenty at hand; it took little trouble to collect them and, though the price might be low, the merchants were usually ready to take any quantity. Soon it was not necessary to take the ashes to York, for in 1799 Duke William Kendrick was offering a fair price at his "potash" south of the "Big Creek Valley" (near Fairlawn Avenue) and honestly warned his prospective customers that they might have to take "merchandise at cash prices" instead of cash.

This "potash" may be also considered as the first "store" on Yonge Street. Within a few years others were opened. Abner Miles certainly continued to keep a store after he obtained a licence for a tavern on Yonge Street in 1805, near Richmond Hill. John McDougall, near Eglinton, and Richard Lawrence, south of Thornhill, may also have been merchants as well as innkeepers. The settlers in this part of the watershed





were thus able to obtain such things as they needed, and could not make themselves without making the journey to York. Itinerant pedlars partly supplied the place of stores, carrying small goods to the houses on their own backs or on packhorses. Only a few were licensed in the early years, for one pedlar covered a wide territory. Some merchants began in this way and all had to make affirmation that they had not "sold goods from door to door" in the last twelve months, before receiving a merchant's licence<sup>1</sup>. Pedlars were handicapped by the shortage of cash, for they could not take bulky goods in trade for the "needles and pins" that began the troubles of the married man.

Most settlers built their own houses, though this was less the universal rule in the watershed than elsewhere. Carpenters were available, for many crossed the lake in the summer, attracted by the demand for public and private building in York. There were contractors who would undertake to build a well-to-do settler's house and thus shorten the time needed to fulfil settlement duties. The houses were almost invariably of logs, usually a little larger than the required 16 X 20 feet. Log houses were warmer, when well built, than frame houses covered with unseasoned clapboards. They could be "neat" if the logs were dressed on both sides, though this might mean a higher assessment. Houses were assessed by their type of construction and the number of "fireplaces" (including stoves) and storeys, rather than by dimensions or cost. Taxable houses were few outside the town before 1812. Most settlers were content with one hearth and with one storey and a loft or attic. Even the lowest category, of round logs with two fireplaces and assessed at £15, was quite rare. Houses of squared logs were common, but few had the second hearth which

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1.

A number of these affirmations are among the Upper Canada Sundries in the Bureau of Archives at Ottawa, including one by Joseph Cawthra.



put them in the £20 class and still fewer even one additional fireplace, rated at £4 in the first two classes. There were higher rates for two-storeyed houses, houses of frame, brick or stone, and the rate for extra hearths rose with the class. A two-storeyed house of frame, brick or stone paid on £60 and on £10 extra for each additional fireplace.

This rule-of-thumb method had its effect in discouraging the building of good houses. It probably explains why the rather large log house still standing on the Dawes Road was built of round logs, although it probably once had a large central chimney with two hearths and so was taxable. John Scadding's first house would probably have been in the £15 or £20 class, but his second was not taxable. A second storey seems to have had to be of full height to raise the assessment and this is one reason for the popularity of "half" and "three-quarter" storeys in Ontario farm houses, though a cold climate and lack of help also tended to recommend a house with one or more bedrooms on the ground floor. The typical house, regardless of size or construction, had a good sized room, with a very wide hearth and serving as kitchen and living room, across one end and beyond it one or two smaller bedrooms. Above was a large loft or attic, doing double duty as a weaving and work-room, as well as a dormitory. If a "parlour" was required, the main bedroom might double as an eating and sitting room, but this would mean a second hearth. A few frame houses of one or two storeys would be found scattered here and there before the beginning of the war, but masonry of brick or stone was limited to chimneys and foundations.

These houses were comfortable by the standards of the time. A well-chinked log house, even of one room, was a warmer and drier home than the crofts and cabins of the Irish peasant or the Scottish Highlander. It was easier to keep clean and sweet than the combined cottage and byre still to be found in the north of England. There was plenty of firewood;





the great hearths threw off a terrific heat when well piled with "foresticks" and the great backlogs kept the fire going through the night. The other arrangements differed little from those common to all but the richest and most luxurious. Comfort and cleanliness depended in those days on the expenditure of labour in the house, and small houses and large families put a fairly high standard within reach of most who desired it. If the houses were crowded and stuffy in winter and hot in summer, so were most houses of the time. They were well furnished (also by the standard of the time and class) before the early period was over. Inventories of losses during the war show that in more remote parts of the Province well-stored houses were not unknown, even in much more backward parts of the Province than the Don area. The carpenter-made furniture now known as "Loyalist" was less universal than some people would like to think was the case. Many families had a few "heirloom" pieces and these could soon be supplemented by others of good quality made of native woods by cabinet-makers in York or brought across the Lake. Pine would do for the kitchens, but for parlours and best bedrooms cherry tables and maple chests and bedsteads were the proper thing.

The prevailing note was one of old-fashioned simplicity and this extended to dress as well. Lack of cash, of materials and of skilled labour enhanced the tendency to make clothes last as long as possible and lengthened the "time lag" which naturally resulted from distance and poor communications. However, it would be a mistake to picture the crowd in the market at York as all dressed in homespun, cut in the Quakerish fashion which certainly prevailed among many of the country people. A certain air of the eighteenth century would be noticeable even after 1800 among the older members of all groups. However, by 1805 post-revolutionary fashions had begun to affect the dress of the French Canadian peasant and their influence in York would certainly not be less. Tail-coats and



round jackets were replacing the old full-skirted coats, and tall beavers the cocked felt hats. Skimpy trousers or tight pantaloons were taking the place of knee-breeches and stockings for holiday wear, as trousers had already done on work days. In winter a woollen "frock" of moderate length was becoming usual with the trousers for work clothes. A hooded coat of homespun was often worn over it, and both may have been borrowed from Lower Canada. The ladies were leaving off some of their many petticoats and making their gowns higher in the waist and narrower in the skirt. Close bonnets were replacing the large feathered hats. Coonskin caps and buckskin shirts were limited to hunters and fur traders. Most people dressed as nearly in the contemporary way as their means and taste allowed them. The Indians added a note of colour or squalor to gatherings otherwise rather drab from the prevalence of undyed homespun and dark broadcloth. They favoured bright-coloured blankets and leggings, and on ceremonial occasions were gay with coloured ribbons, silver ornaments and feathers, but at other times were often more like scarecrows tricked out in dilapidated odds and ends of European dress.

The outbreak of war brought many changes. Men were called from the farms for active service or for transport and road work. The life of the countryside was dislocated, though the government tried to lessen the evil, exempting some heads of families with only young children, releasing the men when possible to help with the harvest and using conscientious objectors for road work and transport. Quakers and Mennonites were exempt from fighting but had to pay for substitutes. The York Militia suffered heavy casualties resisting the landing of 1813, and after the surrender the Americans sent foraging parties up Yonge Street, requisitioned animals and supplies and, no doubt, did some pilfering. No serious plundering is reported outside the town and there were no systematic burnings of mills and houses as in the Niagara and London districts.





Some inhabitants of the Don area were killed in action in other engagements and the war brought the usual share of suffering, loss and inconvenience.

There were, however, some compensations. The demand for all kinds of produce was so great that the country could not begin to meet it. Prices rose steadily until they had to be "pegged" before the war was ended. Naval supplies passed steadily up Yonge Street, bring government gold to the farmers along the road. Millers are said to have worked night and day grinding imported grain. There can be little doubt that the war hastened the development of the area and before long a steady increase in population enabled this development to continue. By about 1820 the Don area was no longer part of the frontier. This had moved on beyond Richmond Hill and the Don area was now part of the "settlements". The change affected all aspects of life in some degree, but in some cases it will be better to deal with the whole period as a unit. Methods of farming varied little before 1840 and the new system followed after the forties and is briefly described. This is also true of the system of local government, while provincial politics lie outside the scope of this report. The development of churches and schools belongs chiefly to the period after 1815.

(b) Farming

The clearings around the log house of the Don area were very small at first. Ten acres was still a good clearing in 1802, though larger ones were becoming common. The system of farming in use called for the enlargement of the clearing every year. Wheat was the chief marketable crop and was almost always sown in the fall on land "chopped" during the previous winter and "burned" during the summer. The land was worked between the stumps with the triangular wooden harrow, rather than the plough. The wheat plot was usually seeded with grass and kept in turf for some years to allow some of the roots



to rot and the stumps to dry out enough to allow some to be burned. The land could then be ploughed and used for any type of crop; many stumps would remain, for it was seven years<sup>1</sup> before a hardwood stump was ready to be jerked out with oxen. Five acres was a common size for a wheat plot, but the sizes of fields varied and by 1815 the square ten-acre field was coming into favour. Timothy was sown at 3 to 4 quarts to the acre. It could be had from farmers on Yonge Street in 1800, but clover seed was brought from Niagara. Oats, potatoes, corn and barley were grown in fair quantity in 1800 and small quantities of other crops such as flax, hemp<sup>2</sup> and tobacco were raised for family use or to meet a special demand. These types of crop were frequently grown on the same plots year after year, but sometimes farmers seeded such fields and let them stay in turf for a time. Joseph Willcocks sowed 20 quarts of timothy on President Russell's oatfield on October 8th, 1800, and three days later he sowed 21 quarts on the five-acre wheat-field. He seems to have seeded more than thirty acres that fall<sup>3</sup>.

Russell was an energetic improver and had an unusually large clearing. His Park Lot lay outside the watershed, but close enough for conditions to be much the same. Such farms were rare on the Don Watershed in 1800, but owners of the same type were to be found there. This farm was worked on the share system as were many in the Toronto region throughout this period. Russell's share of the potatoes in 1800 was 114 bushels and in February, 1801, he sent 239 pounds of "Indian

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1.

A pine stump took an indefinite time to rot, but was easier to burn. Later it was usual to drag out pine stumps with most of their larger roots and use them for fences.

2.

Up to 1812 the Government was making efforts to encourage the cultivation of hemp to supply the needs of the Navy. In 1804 "Joseph Schneider of Yonge Street" won a gold medal for growing hemp.

3.

By the 1830's the practice of seeding in early spring was in favour. Rolph: "Canada" Edition of 1841.





Corn", 114 pounds of barley and 21 bushels of wheat to the mill to be ground. These were probably part of the crop of 1800, though some of the wheat must have been threshed earlier, for Russell's share was probably one-half the crop. A month later he sent 856 pounds of flour from his storeroom to be sold to Eli Beaman, the merchant. This, however, may have been the product of more than one farm. Russell was planting fruit trees from Niagara and buying sheep locally. He kept several cows, a bull and some swine. Wolves and bears preyed on the sheep and swine and the cattle sometimes wandered off to a considerable distance. The horses, however, were kept in the "barn field", which was fenced.

<sup>1</sup>  
Cattle and swine over three months old grazed at "free commons", according to the practice of open range, still in use in some parts of the United States. All unfenced land was common pasture. Stock trespassing on fenced land could be impounded, but the complainant had to satisfy the "fenceviewer" that his fences were the required height with the proper number of rails set at the specified distances, before he could collect the fines. Most settlers on the Don kept some stock, though the total numbers were not large. Some of the Pennsylvanians had brought their cows with them and before long were keeping considerable herds and building large log stables, one or two of which have survived in Vaughan Township just outside the Don area. Manure was little used except for gardens and potato patches near the barn.

Farm methods varied very little before 1840. A long and interesting letter was written in April, 1827, by David Gibson from the house of Alexander Milne, "Fuller and Dyer ..... about seven miles up Yonge Street" (actually on Lot

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1.

Only swine are mentioned in the reports of early township meetings, but cattle certainly grazed at large. This was perhaps taken for granted. In 1801 it was directed that swine should be "yoked with a sufficient yoke". The lower rails of fences had to be close enough to exclude swine.



5, Concession II East in York Township)<sup>1</sup>. In it he gives a friend in Scotland an account of the farmer's routine in the Don area and describes a system almost identical with that outlined. His letter, though rather rambling, is one of the best descriptions to be found of rural life in this period. After describing the method of clearing the land (unaltered until the days of bulldozers) and of sowing the wheat, he remarks:

"I don't think they have any regular rotation of cropping here, it is very common to sow Timothy grass with the first crop of wheat and let it lie in the grass as long as it will cut for hay. They seldom drive out their dung from the barn although the land would be much better of it, they consider it to be more expense than profit to carry it far from the barn so lay it on some place near that they think stands in need of it. They generally keep sheep so as to have wool for their own clothes."

He then quotes six lines of poetry "written of Scotland two hundred years ago" as "very applicable to Canada at this present time". He says he has not heard of a mill for dressing flax in Upper Canada.

"Hudden Gray (undyed homespun) is a very common dress of the farmers in U. C. particularly the Dutch, there are a great many Dutch farmers that have excellent farms in the Township of Markham ..... They are an industrious set of people and attend to the improvement of their farms very much, indeed more so than any other set I have met in Canada."

This would apply equally well to the "Dutch" in Vaughan and to other farmers in the Don area.

It was at no time safe to make general statements about the condition of farming in this part of York County, for local conditions produced a wide variation of methods. In any period some farmers were to be found who were in advance of the standards usual in the Province. Many of these had other sources of income, but were still keenly interested in their farms and in a position to "plough back" more

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<sup>1</sup>. Not from Markham, as stated in Vol. XXIV of the Ontario Historical Society Papers and Records. Gibson says in a postscript that A. Milne "has been reading over this sheet", and distinctly says that Alexander had already left his brother Peter in Markham and "resides in the Township of York". Gibson stayed sometimes with Peter and sometimes with Alexander, but was writing from Alexander's. Some of his remarks, however, apply chiefly to Markham.





of the profits than was possible for the average settler. In the 1820's and '30's many new settlers of the same type as Gibson were coming into the area. Some, like the Milnes, came by way of the United States, bringing with them the capital and experience acquired during their stay. Others came direct from England or Scotland with the latest ideas of modern farming. These various types of up-to-date farmers were active in importing stud animals to improve the local breeds, in experimenting with new crops and new systems of cropping, in manuring, liming and draining their land. They gradually influenced their more conservative neighbours, and even when Gibson wrote a change was beginning in the farming of the area. Progress continued through the next twenty years and by 1846 the system was well established which was to continue through thirty years of agricultural prosperity.

The most prominent feature of the new system was the growing of heavy grain for sale - usually for export. Wheat was already being exported from Toronto in considerable quantities in 1845. The quantity of wheat shipped was less than that shipped from Port Hope and some other ports, but 153,226 barrels of flour were exported in 1845, much of it ground in the Don mills. The system coming into use made considerable use of summer fallow, with crops of peas used as an alternative before planting wheat or included in the routine with oats or other grain. The land was retired at intervals into hay or pasture, but roots and most fodder crops were still grown on separate fields and there was no regular rotation. Peas were already available for export in 1846, but the quantity was much greater in 1850, showing that the system was in wider use. In the 1860's barley was in demand for brewing, both at home and in the United States, and the distillers used considerable quantities of rye. These grains were often grown in preference to wheat, but rather less in the Don area than in neighbouring districts.



Local demand affected production in other ways. The numbers of all kinds of stock were fairly high in the Home District in the 1830's and especially near Toronto. In 1844 the number of cows was more than ten times that of 1842, and four years later three times as many cows were being kept on the farms of Markham, Vaughan and York Townships as in the whole District in 1842. The number of oxen had remained about the same and the number of young cattle had declined.

In the thirties cattle had to be imported from the States to supply the market at York. In 1846 beef, pork, calf skins, sole leather, sheep pelts, butter and lard were all exported from Toronto, though only in the case of pork was the quantity at all large. Four years later a little butter was shipped, but only one cow is listed as having been shipped from Toronto and no meat or lard and very few skins appear in the lists. The city had now grown large enough to absorb the supply of meat and most of the supply of dairy products.

It is obvious that the farmers were keeping more stock and growing a wider variety of crops to meet the demands of the city market. The paper mills of the lower Don were encouraging the production of flax and a surplus was shipped out in 1850<sup>1</sup>. Potatoes, oats and corn were being grown in large quantities. Pasture was in higher proportion to cropland in Markham and in York Township than in Vaughan. York and Vaughan produced more cheese and less butter than Markham, though York was only a few pounds behind in this latter product.

Wheat was still the main crop in 1850, in spite of the tendency to mixed farming. It was during this period of wheat growing that the farms in the Don area emerged from the backwoods stage and assumed the appearance of settled prosperity that some sections have retained up to the present among

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1.

W.H. Smith, writing of Galt in 1851, says that the scarcity of linen rags was causing paper-makers to encourage the planting of flax.





all the urbanization of the rest of the area. Both the grain-growing and the prosperity were at their height about 1867. They lasted for some years longer and, when changes of demand forced shifts to other methods, local advantages did much to reduce their effects for the Don farmers.

(c) Local Government

(1) Rural Municipalities

The government of a township in Upper Canada centred on the Justices of the Peace in Quarter Sessions. The county was the unit of representation and of militia organization, but had no other function, and the districts were only of importance in the administration of justice. "Town"<sup>1</sup> or township meetings had been held in Upper Canada long before they were legalized by statute in 1793. After that date the magistrates were required to call such meetings once a year for the election of officers and the settlement of what animals should have free commons and what should constitute a "lawful fence". Except for these matters the meeting had no legislative functions. The town clerk, assessors, collector, overseers of highways, pathmasters and fence-viewers, pound-keeper and town-warden were elected to carry out laws enacted by the Legislature. The two town-wardens constituted a corporation to represent the township, with power to sue and defend on behalf of the inhabitants, but they and all the other officers were responsible to the Justices in Quarter Sessions, who controlled all moneys and who could appoint to vacancies occurring during the year or in case of non-election by the meeting.<sup>2</sup> The magistrates

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1.

It was at first the custom to refer to the "townships" as "Towns" and this practice continued in common speech for a long time.

2.

The "parish" was expected to take the place of the township and when a parish was organized and a minister appointed, the clerk was to become the "parish clerk" and the wardens "church wardens", one appointed by the minister. This was rarely carried out in practice.



had very wide powers and influenced the life of the inhabitants in many different ways. Besides directing the expenditure on roads and bridges and settling the times and manner of statute labour and the rates of commutation, they were responsible for the erection and management of the gaols and court houses, controlled public charity<sup>1</sup>, settled the fees which the township officers received and licensed clergymen to perform marriages. Apart from these powers granted by statute, they were in a position to settle almost any other problem which might arise and to interfere in a variety of ways in the life of the community.

The Justices of the Peace were appointed for life. They were chosen from among the group of leading men already described, but at first were sufficiently representative of the rest of the settlers, for all were bound together by a strong community of interest. Though the town meetings could not decide any question, they could and did discuss any matters they chose and they thus formed a means of conveying to the magistrates the opinions of the body of freeholders. There was at first little tendency on the part of the magistrates to disregard public opinion. To do so was seldom in their interest, for they stood to lose more by bad feeling among their neighbours than they could gain by corruption or by servility to Government. The early practice of empanelling a jury to decide on particular questions, such as the building of a road, was one means of ascertaining public opinion in the intervals between meetings and of limiting the responsibility of the justices. The right to petition was another check on their arbitrary power, as well as a means of supplementing it by obtaining special legislation and grants in aid. As a rule, however, the numerous petitions to the Governor, the Council

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1.

They had the power to bind children as apprentices, as a means of providing for their maintenance and could give cash relief where needed.





or the Assembly are from the freeholders and magistrates in Quarter Sessions of the area concerned.

The first recorded meeting in York County was held on March 4th, 1799. It included the Townships of York, Markham, and Vaughan, the wardens, assessors and overseers of highways being elected for all three as a unit. Separate pound-keepers, pathmasters and fence-viewers were, however, elected for separate areas, such as the "Circles of the Don and Humber", specified sections of Yonge Street and "the German settlement in Markham". The town of York seems to have been included with the township to begin with. The next year Markham and Vaughan hold separate meetings and assessors are appointed for the town. In 1801 the town had separate overseers of highways. By 1804 the town is separated from the township and the number of areas in York Township with their own pathmasters has been increased to cover more "bye-roads". This process of subdivision had gone much further by 1815. The meetings were held in March up to about 1810. The date was then changed to January.

On the whole the magistrates appear at first to have managed the York County townships to the reasonable content of the inhabitants. As a rule the complaints of mismanagement are directed at the provincial government and its officials and are often backed up by the court of Quarter Sessions. They could resent the arrogance of the highly placed as sharply as any of their neighbours and would stand no nonsense from anyone when it came to enforcing roadwork. Their control of public charity and of the gaols gave them duties which would now fall on welfare agencies. When a settler in Markham fell a victim to homicidal mania, nearly murdered one of his neighbours and wandered about terrorizing the rest, it was to the Court of Quarter Sessions that they applied for help and it was the Justices who gave order for his admission to the gaol (then the only asylum) and deputed a



committee to see that he was humanely apprehended and properly cared for. Similarly when word came that one of the German settlers was dying of an incurable disease and could no longer work, the Justices ordered another committee of leading men from that part of Yonge Street to do what was necessary to help him and his family. Though the rule of the Justices was arbitrary, it was also paternal, and while the settlement remained small and primitive the system worked not too badly.

After the war this happy community of interests was less and less apparent. Complaints of incompetence, selfishness and high-handedness became much more frequent. Although members of both parties were appointed, it came to be believed that the Justices were hand-in-glove with the governing clique and that the ordinary man had little chance of obtaining a summons against a debtor or trespasser if the offender was connected with that group, that favouritism was shown in assessing and collecting taxes, enforcing statute labour and in laying out roads. These beliefs rested on rather slight evidence, but the fact that they were firmly held was sufficient to discourage many from attempting to defend their rights. The country had outgrown the system and in 1841 the "District Councils Act" transferred to a district council, elected directly by those qualified to vote in the townships, all the powers of the courts of Quarter Sessions in relation to roads, bridges and other public works, to schools, to the expense of the administration of justice and payment of township officers and to the collection of taxes for these purposes. The Justices of the Peace thus lost most of their administrative powers and the officers elected by the townships were now responsible to an elected council. The Home District at that time included the present Counties of York, Ontario and Peel.

This Act was evidently regarded as a temporary measure and in 1843 an attempt was made to replace it by an act allowing the incorporation of municipalities. This legis-





lation was delayed by opposition until 1849, when the "Baldwin Municipal Act" was passed and the system of municipalities set up on much the same lines as at present. The settled townships and counties quickly took advantage of the Act to set up corporations on the new basis, and it is for this reason that 1950 is being celebrated as the centennial year of many municipalities whose history goes back to before 1800.

(2) Cities, towns and villages

The distinction between villages and towns was largely a matter of size or importance before 1849. York is almost always called a "town" from the first and occasionally even a "city". There was, however, no difference between the system of government in a town and a village.<sup>1</sup> In either the inhabitants could obtain leave to set up a "Board of Police", elected annually and under the chairmanship of a "President". This Board appointed the town officers, managed such public services as existed, had considerable regulatory powers and could pass by-laws for these purposes and enforce them by fines of £1. 10s. 0d. Toronto continued under this government until 1834, when it was incorporated as a city by act of the Legislature. The system was slightly altered and extended in 1847 and was replaced in 1849 by the "Baldwin Municipal Act", by which cities, towns and villages could be incorporated on practically the present system.

(d) The Second Phase

Though methods of farming and of local government changed very little between the days of Joseph Willcocks and those of David Gibson, most other aspects of life had already begun to alter before 1827 and the change grew more and more rapid during the following years. By 1857 the older inhabitants of the Don Watershed found it a very different place from the area in which they had carved their homesteads from the forest. The clearings were spreading back from the roads and joining to form large areas instead of groups of

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<sup>1</sup>. The Courts of Quarter Sessions had at first regulatory powers in connection with the towns similar to those of the Boards of police.



separate clearings. Already log buildings were being replaced by frame. Picket fences were replacing rails around some door-yards, gardens and even orchards. The front fields were often free of stumps, though there were plenty in sight farther back. The road allowances had been cleared and main roads were losing the look of trails through the forest. At the crossroads were groups of houses, some already becoming villages, with taverns, stores and blacksmith shops. To the older residents these changes were very noticeable and not invariably pleasing. New-comers were more inclined to be struck by the backwoods features still to be seen in every "clearance". It was only when they had had experience of the real frontier that they could realize the time and labour needed to produce even the degree of improvement reached by 1824, and in the meantime were apt to regard the "backwoods" as beginning beyond Yorkville.

Not much remains from the 1830's in the Don area and only a little from before 1850. However, other regions have retained more from this period, sources for the area are plentiful, and it is not difficult to reconstruct the picture. It is one of increasing neatness and comfort, with "pockets" where the old primitive conditions lingered. The number of taxable houses and additional fireplaces was increasing every year. The better houses were no longer limited to those of the lowest rating. There was still a tendency to prefer houses of one or one-and-a-half storeys, but this was now due largely to habit and two-storeyed houses were no longer uncommon. Brick and stone houses were still rare until after 1830, outside the town. In the forties and fifties brick became more and more common and in the sixties large, two-storeyed brick farmhouses were more usual in the Don area than in the townships east of Toronto. These were the houses "built by wheat". Many have survived and are still in good shape, for, though often large, they are not so unwieldy as the "mansions" of the later period, and their straightforward Georgian lines are more appealing to the modern eye than the elaborate







A sketch of Castle Frank,  
made in 1796.



Thornhill — a house of  
about 1840.



Farmhouse near German  
Mills—a type common in  
the 1850's and 1860's.



Octagonal house, near  
"Rupert's Grist Mill" east  
of Maple. A number of  
houses of this shape were  
built between 1850 and  
1865 in Ontario.





jigsaw and spindle-work of the seventies, eighties and nineties.

The early frame barns usually included a stable on one side of the threshing-floor and were covered with horizontal weather-boarding. Before 1840, however, bank barns covered with vertical siding, of a type still in use, had made their appearance and soon the practice of putting the stable in the foundation became common. As time went on the barns were enlarged. During the sixties this was usually done by separate buildings around the barnyard or by rambling additions to the main structure - picturesque but inefficient. The long 100-foot barn had already appeared, however, and this has evolved directly into the modern types.

Inside the houses the changes were also marked. Windows were larger, rooms were plastered and papered, floors boarded. There were more separate rooms and less need for "doubling-up". The crude furniture was disappearing from the main rooms and by 1845 walnut was replacing the earlier maple and cherry. Imported woods were becoming more common. Cabinet-makers were to be found in most villages by 1850, while in Toronto their workshops had developed into factories. By 1860 these factories were producing excellent furniture by a partly mechanized process and were cutting into the trade of the local cabinet-maker. The latter continued to produce well-made furniture, but many of the walnut and mahogany "antiques" of today came from Toronto factories of the 1860's. Honest workmanship and good materials were still the rule in factory or workshop. The taste of the time can be criticized, but shoddiness was not yet hidden by showy elaboration.

The wide fireplace was long a feature of the kitchens, but in 1827 "every farmer has an oven built of brick". The soggy cakes baked on the hearth in a dutch oven were no longer in use. The brick ovens "make as good bread as any Scotch Baker"<sup>1</sup>. The loaves were even a good substitute for

<sup>1</sup>.

Letter by David Gibson already quoted.





oatcakes. Before long cookstoves were coming into use, but did not altogether replace the fireplace for cooking until the end of the period, when it had long been ousted from the bedrooms and even the parlours. Box stoves or franklins took its place in the body of the house by 1850, though some people liked an open fire in one sitting-room. Fireplaces lingered in the summer kitchens or basement stillrooms even after they had been given up everywhere else. By 1850 furnaces were being advertised in Toronto papers, but were still a luxury in 1867. This was also the case with inside plumbing of all kinds. It was available by 1851, but was found in few country houses and not many city ones in 1867.

In 1827 stores and taverns were multiplying in the watershed. Money was still scarce and farmers were still glad to "get a little whiskey, Tea or Cloth" in exchange when they took their ashes to the "potash". This scarcity of cash did not much improve until the 1840's. Business was carried on by barter, but it was no longer necessary to make and mend everything at home. Gibson emphasizes the independence and self-sufficiency of the Canadian farmer, but he was thinking chiefly of the Markham farmers who followed a "plain" way of life by choice and religious conviction. Even if the farmer still dressed in homespun, much of the labour of cloth-making had been taken off the hands of the housewife. The wool was still spun at home, but it could be carded and fulled at the mill and travelling weavers were more numerous. They charged a high price - 12 to 15 cents a yard for plain cloth and wove 8 to 10 yards a day, demanding their board and lodging as well. Tanneries were also within reach and shoemakers were to be found at some of the crossroads.

The high prices of the war years had given the region a start and the expansion of the 1820's was paid for to a great extent from the accumulation of legitimate war profits. Some recession was inevitable and was already apparent about



1817, and was one of the causes of the discontent expressed in Robert Gourlay's agitation. There was some recovery within a few years. There had been a remarkable advance by 1824. However, in 1827 we find David Gibson writing, at the dictation of Alexander Milne, the following advice to his friends in Scotland: "Anyone that comes to Canada with the thought of making money by farming will find themselves very much deceived as labour is so high and the price of produce so low, but they that are industrious can find by their labour to satisfy all their wants as to eating and drinking and wearing apparel, and many of the luxuries of life. They have a house, and land of their own, and plenty of fire to keep them warm in the cold winter evenings."

There were, however, other activities that would bring an energetic man a greater return if he had some capital. Alexander Milne, who dictated the passage just quoted, had recently terminated a profitable partnership with his brother Peter in the milling and storekeeping business at Markham Village, and was setting up for himself on a tributary of the Don. Others were starting similar ventures at that time and the competition for mill sites was keen. If it was so profitable to open a mill or a store, farm incomes can hardly have been quite so scanty as Milne indicated, and during the early thirties the price of produce improved and the profits of farming grew greater. In 1837 there was a sudden slump, and we find writers of the period echoing Gibson's remark that Canada was a "good country for the Labouring Class" and advising those with capital not to buy land. Conditions were soon to improve once more with a new wave of immigration, but in 1837 the prospect seemed far from bright.

(e) The Rising

The period had been one of growing political discontent, due in part to the fluctuating economic conditions and culminating in the outbreak of December 1837. These





agitations only concern us in so far as they affect the development of the Don area. It has been pointed out that some of the conditions to which the Reformers particularly objected had by 1830 already passed away to a great extent, as far as the Don area was concerned. The Reserves had all been occupied for many years and a large proportion of them had been sold. The tax on wild lands and the increase in land values had led to the sale of much land held by absentees. However, the feeling that an obsolete system of government was retarding the development of the country was as general there as in most parts of the country and there were many Reformers in the area. They included some of the leading Radicals, such as David Gibson and John Montgomery, and members of many families prominent in the area, both early settlers and more recent immigrants. A great many of the names mentioned in this chapter are to be found in the list of those arrested after the skirmish below Montgomery's Tavern. Some of those arrested were certainly moderate Reformers who had taken no part in the outbreak, for the strength of Mackenzie's party lay elsewhere. The anxiety of many of the rebel leaders to postpone action till they could be reinforced from outside the Home District is evidence that they could not count on much support in the southern part of York County. The Tories were naturally active in a favoured area so close to the seat of Government. They were not so numerous as the moderate Reformers, who supported Mackenzie as long as he stuck to constitutional methods, and later showed the strength of their voting power in the York Ridings. Party lines divided families and social groups. It has been said that all who had something to lose supported the Government and there is a good deal of truth in this, especially at the time of the actual outbreak. Nevertheless this generalization can only be accepted with caution in the case of the Don area.

The chief events of December 1837 took place in the Don Watershed. It was by a message to David Gibson, who



now lived on a farm north of Eglinton, that the date of the rising was changed from December 6th to December 4th. The rebels met at Montgomery's Tavern and a later conference was held at Sheppard's Mill on the East Branch near Bathurst Street. On the 6th the rebels rummaged the neighbouring houses, seizing arms and provisions. Most of those concerned in the death of Colonel Moodie were residents of the Don area. The news of his death caused consternation down Yonge Street and in Yorkville. William Copland, the brewer, buried his books,<sup>1</sup> packed his plate and valuables and set off for York, and others probably fled at the same time. The first advance on the city was met at Gallow's Hill by a flag of truce and this delayed the rebels for some time. During the negotiations they advanced as far as Bloor Street and burned Dr. Horne's house near Collier Street. The burning of Rosedale House was suggested but was not carried out, possibly because the "Patriots" were unwilling to go so far into the woods. They were in a very nervous state and a party had been scared off Yonge Street near Mount Pleasant by a load of firewood that they took for a cannon. Since most of them were untrained and almost unarmed, and expected to meet trained troops, such nervousness is understandable. It was at this time that the mill on Castle Frank Brook was burned by a party who had marched down Poplar Plains or Avenue Road.<sup>2</sup>

The first skirmish between a reconnoitring party of Patriots and a picket of militia took place near Maitland Street the same evening. Both sides retreated hastily after firing a few shots. The rebels now withdrew

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1. He was afraid the rebels would burn them since they contained the evidence of who owed him money.
  2. The Mill seems to have been near Poplar Plains Road. It is described as near the "tollgate" in 1850, but this might refer to any of three tollgates in the vicinity at that date - at Yonge Street, Avenue Road or Poplar Plains Road.





to Gallow's Hill and Mackenzie made his headquarters (according to one account) in a house west of Yonge Street and below St. Clair, commandeering the kitchen fire to cook sheep brought from other farms.<sup>1</sup> Here the mailbags from Hamilton, captured on Dundas Street, were opened and examined. Later he withdrew to Montgomery's and despatched a party under Captain Peter Matthews to burn the Don Bridge and intercept the eastern mail. This force probably went down the Second Ravine and the Don Valley. It stopped the mail and marched a short distance west on King Street until scared off by a detachment of militia. The bridge was set on fire, but the fire on the bridge was put out.<sup>2</sup> However, the tollgate, a tavern and other buildings were destroyed. In the meantime the militia had marched up Yonge Street and were met by the rebels half-a-mile south of Eglinton at the top of the rise near the Paul Pry Tavern. They were outnumbered and discouraged. The militia were little better trained, but were full of enthusiasm and confident in their numbers and better equipment. The skirmish did not last long. Soon the Patriots were scattered through the Don Watershed, Montgomery's Tavern was in flames, and a thorough search of the area had begun, hampered by the bad state of Yonge Street. The hunt continued for many days. Houses and barns were rummaged and haystacks probed. There was some plundering and David Gibson's house was burned and possibly some others. No known Reformer was entirely safe unless he had turned out with the militia, as many did.<sup>3</sup> Known and suspected Radicals were taken on sus-

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1. Robertson's "Landmarks of Toronto". The account gives a detailed description of the Patriots' behaviour.
  2. Accounts differ as to how or by whom this was accomplished
  3. One of the Fathers of Confederation, then a youth of seventeen, was found with a gun in his hand, "hunting hogs in Hogg's Hollow", and not unnaturally arrested as a rebel. He had no connection with the rising and was soon released.



picion. The lists include many from the Don, but most were released after a short time. The whole region was thrown into confusion. Development received a partial check. However, the disturbances of the next two years did not directly affect the Don Watershed and before long the life of the area had resumed its ordinary course.

The events of 1837 were responsible for some additions to the fortifications of Toronto. The blockhouse west of the mouth of the Taddle had been replaced by one near that of the "Little Don" at some time between 1818 and 1828. Three others were now built at the northern edge of the "Liberties" - one near Bloor and Spadina Road, one north of Yorkville and east of Yonge Street, close to Aylmer Street, and one on the line of Bloor Street, just west of where that road ended at Sherbourne Street. These blockhouses commanded the chief roads leading into Toronto from the back country. Those at Yonge and Sherbourne Streets overlooked the First Ravine and long remained as monuments to the rising of 1837.

(f) The Third Phase

The political disputes that continued to agitate the Canadas after the Union of 1841 have somewhat obscured the real progress made in Canada West during the early 1840's. A comparison of descriptions of the Province in 1836-39 with one of 1846 shows that there had already been a great advance by 1842. In many ways the progress had been remarkable. It received a considerable impetus later in the decade from the development of milling. This was the flourishing period of the lumber trade and of the development of small industry. All this brought prosperity to the area and hastened the spread of improvement of all kinds. By 1850 the area had lost most of the characteristics of a backwoods settlement. A squirrel could no longer "leap from tree to tree" right across York Township<sup>1</sup> as he might have done ten years

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<sup>1</sup>. Or across the County. The traditional English verse might have been paraphrased thus:

"From Yorkville unto Kettleby  
A squirrel may leap from tree to tree."





earlier. He might travel in this manner for some miles in certain directions but sooner or later he would be reduced to running the fences. In 1860 his arboreal range would be much shorter. There was still plenty of woodland, but it was far less continuous than it had been, even in the centres of the lots.

The process of improvement in fields and buildings begun in the 1830's was going steadily forward. Where it had been observable in a limited number of farms, it was now to be seen in the greater part of those in the area. The degree of improvement still varied considerably, but in the 1860's most farmers in the watershed were well lodged and well equipped. Some indication of the change is given in the remarks of W. H. Smith, comparing the inns of 1850 to those of the 1830's:

"As the country becomes settled up and the traffic increases, the means of the inhabitants also improving, they begin to look for a different quality of accommodation to that with which they were satisfied twenty years before. The settler, who, fifteen or twenty years ago, when he was detained on the road, on his way to or from market, was glad to put up, with the share of a bed with a neighbour,..... now, after growing independent, and paying a few visits to the city, begins to raise his head a little in the world; he drives himself and his wife in the new 'buggy', sends his man on with the team, and, if he stays on the road, requires not merely a bed, but a room to himself."

Tavern-keepers had to fall into line or lose their custom. If the farmers were demanding better accommodation for a one-night stay, they would be even more likely to require it at home. This tendency would begin earlier in the Don area, for the farmers were more familiar with city ways.

The many houses still standing from the 1850's and 60's show this change in an enlargement of the ground plan and in the division of the "half-storey" into "chambers". There was a tendency to increase the height of the eaves to give more head room.<sup>1</sup> Kitchens were now commonly in a wing and the

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1. There was still a good deal of crowding by our standards, even in well-to-do city families. The younger members of the family had seldom a bed to themselves, and the sons of one Supreme Court judge had to finish dressing for parties in the hallway, because their bedroom was too small to hold their chest of drawers and dressing-glass.



attics over these ells provided extra bedrooms for the help. Two-storeyed houses, with spacious "chambers" and a garret for storage, were more and more common.

Otherwise the houses of the period were not very different from those of twenty years earlier except in small details of style. The "picturesque" or "romantic" style was making headway in the suburban villas and village houses in the 1840's, but in most country houses of the sixties any attempt at the picturesque was limited to "dressing up" certain features with fashionable ornament. The British settlers were credited with introducing a certain change of style and with favouring certain types of construction - brick for the Englishman, stone for the Scot. These peculiarities had been remarked as early as 1829, but the nationalities in the Don Watershed were too mixed for these variations to affect definite areas. The influence of English bricklayers and Scottish masons made itself apparent whatever the origin of their employees.

In general the apparatus of comfort was much the same; the change lay in the greater variety, in small improvements and in the much greater amount available to the average person. It could be seen in a changed style of dress, growing always closer to current fashion; in the many different types of pleasure vehicles and their increasing number; in the gradual substitution of lamps for candles; in some use of coal for fuel and in the growing elaboration of the contents of the houses according to the means of the owner. The same change showed itself in the working lives of the inhabitants of the area, in the use of steam to supplement water power and in the mechanization of farming and, to a less extent, of industry. This process had gone further in agriculture in the sixties than in the rural workshops, but home industry was disappearing and village handicraft was beginning to give way to competition from factories.





Occasions for social intercourse were of much the same sort in the earliest period as in the twenties and thirties, but they were much fewer. Town meetings, elections and militia days had been the excuse for gatherings. Church meetings and funerals brought people together and the latter were occasions of much eating and drinking. Weddings at first meant a trip to York, and this limited the extent of the festivities and the number of guests. Bees were not so common on the early frontier as they became later. Neighbours helped each other, but in a scattered community where everyone was busy at the same time it was not easy to get a large group together.<sup>1</sup> For all large gatherings there was practically no accommodation beyond one or two log schoolhouses. The inns were little larger than the houses. After 1820 bees began to be held on every possible occasion, the other types of gathering became more frequent and better attended, and now special provision was being made for their accommodation. It was here that the inns fulfilled an important function. Something is said of the inns of the Don area in the next section in connection with travel, but the provision of refreshment and lodging was only one of their activities. When large taverns began to be built it was the ambition of every innkeeper to have a "ballroom" and often the whole upper storey was sacrificed to it.<sup>2</sup> There were far more ballrooms than dancers to fill them and these rooms were sometimes used for almost any

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1. Bees were held for clearing land and for haying and harvesting. It was not unusual for landowners to bring parties from York to help with the harvest. Threshing was done during the winter as the grain was needed or time allowed. Large gatherings for raising buildings were not so necessary as they became later.

2. The ballroom was almost always in an upper storey. It might be in a wing, like the one at the "Blue Lion", or in the attic of a two-storeyed inn. Sometimes folding doors allowed it to be divided into "chambers", but more often beds were set up in the open hall.



purpose but dancing. The Quarter Sessions and the superior courts sat in the inns; the freeholders met there to elect officers; lodge meetings were held there, at the full of the moon, politicians harangued their followers in them and each party had its favourite tavern.<sup>1</sup> Agricultural societies used them for their banquets and they were often the scene of wedding festivities, even if these did not include dancing. Even church services were sometimes held in an inn, though a schoolhouse was usually preferred as a temporary church.

The various festivities of the 1830's have been frequently described. The more sedate people found them distressingly crude and rowdy. As the forties advanced these gatherings became quieter and better organized. Special buildings were built for public meeting-places and the assembly-rooms of the inns were restricted to their ordinary use as banquet or ball-rooms, though lodges sometimes continued to meet there. Larger houses and more leisure allowed of more private entertaining and (unless the Don area differed widely from other parts of the Province) the forties, fifties and sixties were a time of much visiting, tea-drinking, supping and dining.<sup>2</sup> Picnicking was popular and visits from friends or relations for this purpose were a welcome break in the routine of country life. Winter was the best time for diversion and people were willing to take long, cold drives to enjoy a few hours of what seems to us very mild entertainment. Evening parties, like lodge meetings, were timed to coincide with the full moon. However, such junketings were not limited to the time of good sleighing, and even the spring break-up could hardly check some inveterate visitors.

The country houses near York, such as Rosedale and Spadina, had been centres for this kind of entertaining

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1. Montgomery's for Reformers and Finch's for Tories.
  2. Visiting of this kind figures largely in some diaries of 1845-1865.





from an early period, but it was not now restricted to a limited group. The functions, shows and parties of the city, naturally, played a large part in the life of the area and young people gathered from long distances to attend a ball in Toronto. If no carriage was available they got in as best they could, though by the end of the period it was thought a little eccentric for young ladies to come to a dance in a farm waggon. When the railways came, intercourse with the city became even closer and this was already having an effect on local activities in the 1860's.

(g) Schools and Churches

The first settlers in Upper Canada built school-houses almost before all of them had replaced their shanties with houses. Whether the Berczy associates put up a school-house for their settlers is not known for certain, but there was a log schoolhouse at Unionville very early and Melchior Quantz is said to have conducted a school near German Mills. Stegman in 1801 records a "School House" standing in the centre of the allowance for Yonge Street, opposite Lot 25 East and near what later became Steele's Corners. Who supported this first school in the Don area, outside York, or who taught there seems to be unknown. It may have belonged to the Lutherans of the Fisher group or was perhaps the original of the school near Thornhill, taught by John Langstaff from about 1810 to 1812. This may also have been the school held in the first log house built by Balser Munshaw on Lot 35 East in 1794-5 and lent by him for the purpose when he had built another house.<sup>1</sup> In 1815 a frame building was put up on Lot 34 West to house this school and also to serve as a place for services. It was used by several denominations, whose

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1. See Section 3 of this chapter. Balser Munshaw was not one of the Berczy settlers, as has recently been stated, and Berczy did not claim him as one. This school continued to be used until 1892.



members would also support the school. The Lutherans in Vaughan and Markham had a schoolmaster in 1810, so it is to be presumed that they already had schoolhouses. The schoolmaster was J. P. Radenmüller, a Hessian who had had a varied career and had come to Canada in the service of the Duke of Kent, father of Queen Victoria. (He was to end his life as keeper of the Island Lighthouse, where he was mysteriously murdered in 1815.<sup>1</sup>) Radenmüller's school in Markham may have replaced Quantz' school at German Mills, and that in Vaughan may have been at Lot 25. In 1824 the Lutherans had a schoolhouse at Zion Church near Sherwood. The Mennonites also had schools in connection with their churches at a fairly early date. Radenmüller wrote fluent, if rather peculiar English, and may have taught both English and German. However, these schools were taught chiefly in German till 1841 and in 1848 a merchant in Markham found it to his advantage to learn some German for business purposes.

These first schools were organized by the settlers. There was no regular system of state aid, though the government, even before 1816, sometimes contributed to the cost of the building and to the teacher's salary and gave money for books. In that year legislation legalized the organization of "common schools" by the inhabitants of a township or village. If such a group undertook to build a schoolhouse, to pay a teacher (in part at least) and "engaged to provide twenty scholars or more", they were empowered to appoint trustees to manage the school and could apply for a grant from the provincial board of education. District boards were also appointed and these had power to grant up to

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1.

Radenmüller wrote the petition of David Holly already mentioned. He describes himself in it as "schoolmaster to the Lutherans in Markham & Vaughan". Two discursive letters in the Bureau of Archives, Ottawa, give his previous history. He had served in the army and had been "chamber swiss" to Frederick, Duke of York, who passed him on to his younger brother, Edward, Duke of Kent, in the same capacity. He came to Upper Canada hoping for government employment. The appointment to the lighthouse was perhaps given to stop him pestering the Governor with long letters.





St. John's Church, York  
Mills. Founded 1817—  
rebuilt 1843.



Trinity Church,  
Thornhill.



United Church,  
Fisherville.



Churches at Richmond  
Hill.





£100 for textbooks. The schools were built and maintained chiefly from the subscriptions of the school supporters, and once well established were expected to require less government help. Grammar schools were established in each district town to provide secondary education. The government paid £100 a year to the headmasters of these schools, the balance of the salaries and any other expenses being the responsibility of the school supporters, aided by occasional grants.

A few schools were organized under this system in the area, but the "Old Blue School" at York seems to have served York Township, as well as the town, for some years. There was little progress before 1841 and the quality of both teachers and equipment was often poor.

In 1841 a better system was set up, by which the schools were partly supported by direct taxation and partly by fees. More powers were given to the District Boards of Education; the townships were divided into school districts, and by 1845 York Township had 23 common schools, Markham had the same and there were 18 in Vaughan. In 1846 the present public school system was set up and by 1849 the number of public schools in Markham was 27 and 20 in Vaughan. The schools were now free and teachers were specially trained. By 1860 the old schoolhouses were being replaced and the system was functioning in very much the same way as it did until about 1920.

The first building intended for religious purposes of which we have any record in the Don area is the schoolhouse on Lot 34 West, just referred to. This was in use by "Wesleys, Quakers, Baptists, etc."<sup>1</sup> in 1824. Several congregations had been organized by this time in the watershed, but they had no church buildings. Three churches were built before 1820. St. John's, York Mills, was built in 1817 by the

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1.

There was a Baptist congregation with a resident minister at York Mills in 1846.





exertions of the Reverend John Strachan and was at first served from York. The Presbyterian Church at Richmond Hill was built in the following year, and the Lutheran Church, south-east of Sherwood,<sup>1</sup> in Vaughan Township in 1819. Besides these John Goessman mentions three meeting-houses in the first concession east of Yonge Street in York Township in 1824, but gives the exact location of only one. It was on Lot 3, Concession I East, and belonged to the Wesleyan Methodists. So did the others whose position is not given, but one was shared with the Presbyterians. St. Paul's, the first Roman Catholic church in the Town of York, dates from 1826,<sup>2</sup> and was probably inside the Don Watershed. Trinity Church, Thornhill, was begun in 1829 and dedicated in February 1830. The Reverend Isaac Fiddler served as a temporary incumbent for some months in 1832, but then left because his wife could not stand life in such a backward area. Mr. Fiddler himself would have been content to stay if he could have had a full missionary salary. He showed little missionary zeal, however, refusing to hold services in the back concessions although requested to do so. His successor, the Reverend George Mortimer, was of a different type. He founded a mission at German Mills, probably in the schoolhouse, and insisted on serving there after his health had forced him to turn over most of the work of the parish to his curate, Mr. Townley. The mission at German Mills seems to have been given up after his death in 1844, but the succeeding rector is credited with founding the English church at Richmond Hill and also another, serving all three every Sunday, riding a round of 25 miles and preaching three separate sermons.<sup>3</sup> He was a notable horseman who preferred

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1. On Lot 12, Concession III of Vaughan. The present church was built in the '60's and has been restored and modernized since.

2. The original church.

3. The Reverend D. E. Blake became rector in 1844 after Mr. Mortimer had been killed in a carriage accident. His founding of the church at Richmond Hill is recorded by Robertson and in "The Irishman in Canada". The location of the third church is not given, but the distance makes it probable that it was outside the watershed. Mr. Blake had already founded three churches in Adelaide Township.



jumping his horse over a fallen tree to riding round it.

This practice of serving several churches was usual in the watershed up to about 1860. The Presbyterian and Lutheran clergymen served more than one congregation, and the strength of the Methodists from the first had been their system of itinerant clergymen who rode a wide "circuit". Resident clergymen usually eked out their scanty stipends by taking up land to farm, and this was the case even with the Church of England rectors, who were not entirely dependent on their parishioners. The rectories of both York Mills and Thornhill had been endowed before 1836, but the endowments cannot have produced much revenue in the '40's. A conscientious clergyman had a strenuous life in early Upper Canada and the learned ease which Mr. Fiddler desired was not then to be found in the Don Watershed.

These churches sufficed for some years, but a number were built soon after 1840 and others added in the next few years. Still others were built in the '50's and early '60's and in 1867 the watershed was even better supplied with churches than with schools. Trinity Church, Thornhill, is now the oldest church building in the area. It retains part of the original building of 1829-30 and has not been greatly altered since some additions were made in 1840. Both inside and out it is an attractive example of the simple type usual in Upper Canada at that time. All the other churches built before 1840 have been rebuilt, some more than once. A few remain from the '40's, among them Trinity Church, Queen Street, Toronto; St. John's, York Mills; and St. Jude's, Wexford<sup>1</sup>; and one or two of the simple meeting-house type, though these have usually been altered. Examples from the '50's and early '60's are fairly numerous, and some are little altered, like St. Luke's Roman Catholic Church, Thornhill, the prettily

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1.

Trinity - 1842; St. John's - rebuilt 1843; St. Jude's - 1848; St. Luke's - 1850; Fisherville - 1853; Carrville - before 1860.





situated church at Fisherville, or the little brick "meeting-house" at Carrville. These all belong to the old simple type, as do many others scattered over the area. In some cases greater prosperity was producing a more elaborate period.<sup>1</sup> The two churches at Richmond Hill are rather pleasant examples of this period, but are larger and more urban than the average. The Presbyterian Church at Maple and Zion Lutheran Church, south of Sherwood, are perhaps more typical, with their quaint wooden belfries.

## 8. Transportation 1830-1867

### (a) Roads

The great period of road travel in the Don Watershed was between 1840 and 1875, and it was during the early part of this period that the system of road maintenance was reorganized in the case of the main highways. Three of these in York County had been built by the government and were the property of the Crown. These were Yonge Street, Dundas Street and the Kingston Road.

#### (1) Toll Roads

As early as 1830 it was obvious that the roads were inadequate, particularly Yonge Street, on which the summer traffic was much heavier than on the others. In January 1830 Seneca Ketchum, James Hogg and other inhabitants of Yonge Street petitioned the Assembly for leave to set up a Road Company, raising the capital by loans on the security of the tolls to be collected. The scheme was investigated by a Committee and it was agreed that a system of tolls appeared to be the only way of keeping the roads in condition. However, there was some unwillingness to set up private companies on the "military" roads and the committee reported that it might

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1.

The Anglican Church may date from 1845. Smith lists two churches in 1846, and also in 1851. He calls them "Episcopalian" and Methodist in 1846 and Presbyterian and Methodist in 1851. Since a Presbyterian church was certainly there in 1846, Smith probably wrote Episcopalian in error. The style of the church suggests a later date than 1850.



be a useful experiment "to allow a sum sufficient to macadamize four miles of that road to be expended, and afterwards to place a toll-bar with moderate rates of toll for two years, within a mile of York". The tolls were to be let by auction and the profits to be applied to the upkeep of the road "under the direction of the freeholders in the vicinity."

The scheme was not carried out exactly as recommended. Funds were granted in 1833 and Rowland Burr was given a contract for improving Yonge Street. Burr graded the hills by means of cuts and of embankments across some valleys, such as the First Ravine and Hogg's Hollow. He followed the straight survey line and the old detours became alternative roads. Most of them passed gradually out of use.<sup>1</sup> This grading was considered at the time a marvellous achievement. It was in preparation for macadamizing the road. This, however, progressed very slowly. In 1837 Yonge Street was only macadamized as far as Yorkville, where the first toll gate stood at Bloor Street. The rest of the road is described as "tolerable",<sup>2</sup> but "in good weather" should be added: in December 1837 much of Yonge Street was in a very bad state.

In 1836 trustees were set up for the highways of the Home District. "For the Yonge Street Road" seven were appointed including Jesse Ketchum, Charles Thompson, owner of Holland Landing stages, John Montgomery of "Montgomery's Tavern", and James Davis, founder of Davisville.<sup>3</sup> They were

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1.

The Lakeshore Road does not appear among the "Toronto roads" in the tables from which the figures are taken. The Markham Road was also a Government road in the 1840's. Old Yonge Street at York Mills is the only one of these "by-passes" still in use.

2.

Thomas Rolph: "Canada". The statement is taken from the second edition, 1841, and seems, like much of Rolph's information, to refer to 1836-8.

3.

The others were George Lount, James Pearson and D'Arcy Boulton. Lount and Montgomery can only have acted for about eighteen months.





empowered "to erect such number of Gates on or across the said Road ..... and fix such toll as may be found expedient ....". There was probably already at least one toll gate on Yonge Street, for one on Dundas Street is mentioned in the Act. Others were now set up farther up Yonge Street and the macadamizing was carried on during the next ten years. By 1846, when the Provincial Government had taken the roads back from the Trustees, the "stone road" reached to Richmond Hill.

Up to 1841 the Government had spent more than \$400,000<sup>1</sup> on the three "Toronto roads" - that is, on Yonge Street to Holland Landing, the "West York Road" (Dundas Street, No. 5) as far as "Springfield" (Erindale), and the "West York Road" (Kingston Road, No. 2) as far as the Rouge. By 1846 Yonge Street was macadamized as far as Richmond Hill and Dundas Street as far as the Credit. Eighteen miles of the Kingston Road had been planked. All three were toll roads and in 1846 brought the Provincial Government a gross revenue of about \$10,245. Expenses were only \$300 in that year, but as the improvements were pushed farther up Yonge Street and traffic on all the roads increased, the expense multiplied faster than the receipts. In 1848 the gross revenue was about \$49,775, but expenses were so heavy that the net receipts were only \$9,335. In 1849 the receipts were greater and the expenses somewhat less, so that the average for 1846, 1848 and 1849 is about \$11,000 and this is probably close to the yearly average from 1845 to 1850. Both receipts and expenses would be greater on Yonge Street than on the two other roads.

In 1850 these three roads were sold to a private road company for £75,100. This did not recoup the Province for all expenditures, but seems to indicate that profits were expected to increase. "Whether the Government has acted wisely in so doing remains to be proved; the roads were formerly

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1. W. H. Smith: "Canada Past, Present and Future", 1851. This and the figures up to 1849 are from the chapter on York County.



in the hands of Commissioners, and many persons were of the opinion that the Government acted without much judgement in taking them into their own hands. They were certainly very badly managed, and whoever loses by the present transfer, the public at all events are likely to be the gainers, as they will never submit to pay tolls to private parties for travelling on such bad roads as they have been condemned to use for the last year or two."<sup>1</sup> This last seems to refer to stretches on Dundas Street and the Kingston Road, well outside the Don area, for the same writer says in another passage that, with these exceptions, the roads of the "Upper Province" were on the whole very good in 1850. The macadam road now extended to Holland Landing.

Whether or not the public gained by the sale of the roads, the purchasers were almost certainly losers in the long run. The opening of railways in 1853, 1855 and 1856 reduced the tolls on the roads, and when the County of York purchased these three roads and also the Lakeshore Road in 1865 the gross yearly revenue was only about \$32,000 for all four. The purchase price was then fixed by arbitrators at \$72,500 - less than a fifth of the price of 1850. The County continued to collect the tolls, farming out the various gates to the highest bidder.

The tolls were never popular. They were evaded whenever it was possible to use a side road, and in this way the improvement of the side roads, which were free, was hastened by the existence of the toll gates. Pressure was put on the municipalities to improve the free roads and people did their statue labour or paid their commutation with less grumbling when it meant having an alternative to the toll roads. The system of tolls was certainly the only one that could have produced the sums needed to bring the main roads up to the modern standard of 1840. It survived in York County long

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1.

W. H. Smith, 1851





after other methods had been found successful elsewhere<sup>1</sup>, and was only abolished in 1896.

By that date the County had acquired the three or four other toll roads that crossed the Don Watershed. In 1851 the "Davenport and Vaughan Road Company" had carried their planking about six or seven miles up Davenport Road, Vaughan Road and Dufferin Street. At this time it seems to have been the intention to extend this road up Dufferin Street but before long it was connected with the Weston Plank Road and continued by Woodbridge and Pine Grove. The planking of Dufferin Street had been carried little farther in 1860, but the Weston branch was "plank or macadam" to the boundary of King Township.<sup>2</sup>

A plank road led from Toronto to the Don Mills by 1850. It followed the line of the present "Winchester Street" descending into the valley beside the "new cemetery" (Necropolis) and climbing out again by the road recently named Royal Drive. The planking seems to have extended to Todmorden<sup>3</sup>, but the remainder of the road had been improved to where it ended at "Gray's Mills" (Donalda Farms). There two private roads (now closed) provided access to the concession roads to east and west. After the building of the Grand Trunk Railway in 1856 the "Don and Danforth Road" was built, following the

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1.

The roads in Hastings County had been bought by the County and were all "free as the air" in 1877.

2.

So shown on Tremaine's map of 1860. W.H. Smith says the planking extended about six miles in 1850-51. Browne's Map of York County, 1851, shows the symbol (---) on this road for about seven miles, including the Vaughan Road and part of Dufferin Street. Tremaine shows about the same in 1860. Browne shows no improvement connecting with the Weston Road.

3.

On Tremaine's Map of 1860 it is marked as "planked or macadamized" to Todmorden and as a "common road" beyond. W. H. Smith says it was planked in 1850-51, but does not say how far the planking extended.



present Danforth Avenue from the Old Danforth Road to Broadview Avenue. This road turned down Broadview to Gerrard Street and crossed the river by a new bridge, later called the "Gerrard Street" Bridge.<sup>1</sup> The Dawes Road had also been improved by 1851, but does not seem to have been macadamized.

A full account of the toll gates on Yonge Street can be found in different publications on Toronto<sup>2</sup>, but the positions of those on the Davenport and Vaughan Road, the Don Mills Road, the Don and Danforth Road and the Kingston Road are not so easy to determine. They are not marked on the early maps, except for one on the Kingston Road near the Village of Norway at the end of the Dawes Road. Another is known to have existed on Davenport Road near Avenue Road, and no doubt all these roads had their full complement.<sup>3</sup> The privately owned roads were also gradually acquired by the County, some just before tolls were abolished. The Davenport and Vaughan Road Company continued to operate the road to Kleinburg until about 1892.

## (2) Common Roads

The improvement of the minor roads went on steadily and was increased rather than lessened by the building of the railway in 1853, especially in the case of the east and west side roads which served as feeders to it. During the thirties there were continued complaints of the appalling state of the roads. However, after 1840 these complaints grew less and less frequent.

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1.

On Tremaine's Plan of Toronto in 1860 the road east of this bridge is called "Danforth Road" and the street to the west "Don Street". Both the "Don and Danforth Bridge" and the "Necropolis Bridge" are mentioned in the report of the flood of 1865. In 1878 the former is called the "Gerrard Street Bridge". Only the Necropolis Bridge appears on Browne's Map of 1851.

2.

Robertson: "Landmarks of Toronto"; Scadding: "Toronto of Old"; Guillet: "Pioneer Life in York County". etc., etc.

3.

There were toll-bars on Dufferin Street at Willson Avenue and near Concord in 1860.





The majority of the minor roads had still only a "dirt" surface in the 1850's, and stretches of corduroy were fairly common. However, a generation of "road work" had begun to have some effect. The roads were now free from stumps, roots and boulders; the corduroy was better laid and covered with a thicker layer of earth; the travelled roads had been ditched; some hills graded; better bridges and culverts built; and not a few of these township roads were in nearly as good condition as at any time in the next seventy years.

Bad weather could still wreak havoc with the best highways. "The traveller (in 1851) must remember that for a short time in the spring and fall, when the frost is half in and half out of the ground, all natural roads (that is, all that are not either planked or gravelled) are necessarily very bad, indeed, in some Seasons, for a short time travelling is almost impossible, the rule being, the richer the soil the worse the roads; otherwise the roads in the Upper Province, considering the short time the country has been undergoing the process of civilization, are very good".<sup>1</sup> The warning might well have been extended to include the gravel roads. It still applied fairly accurately to most unsurfaced roads as late as 1930 and is not entirely irrelevant even today. In winter the comfort of travel depended on the amount of snow, but if the frost held the roads were passable without snow, although perhaps uncomfortably rough.

### (3) Plank Roads

The unavoidable deterioration of the roads in spring was responsible for the temporary popularity of the plankroad, unknown outside North America. The use of planking for footwalks had begun early and continued almost to the present day in small towns. The planking of roads was a natural extension of the practice where lumber was so much cheaper than labour. These roads gave an excellent surface in all weathers when new or well kept up. They were usually

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1.

W. H. Smith: "Canada, Past, Present and Future", 1851.



# ROADS AND MILLS ABOUT 1852

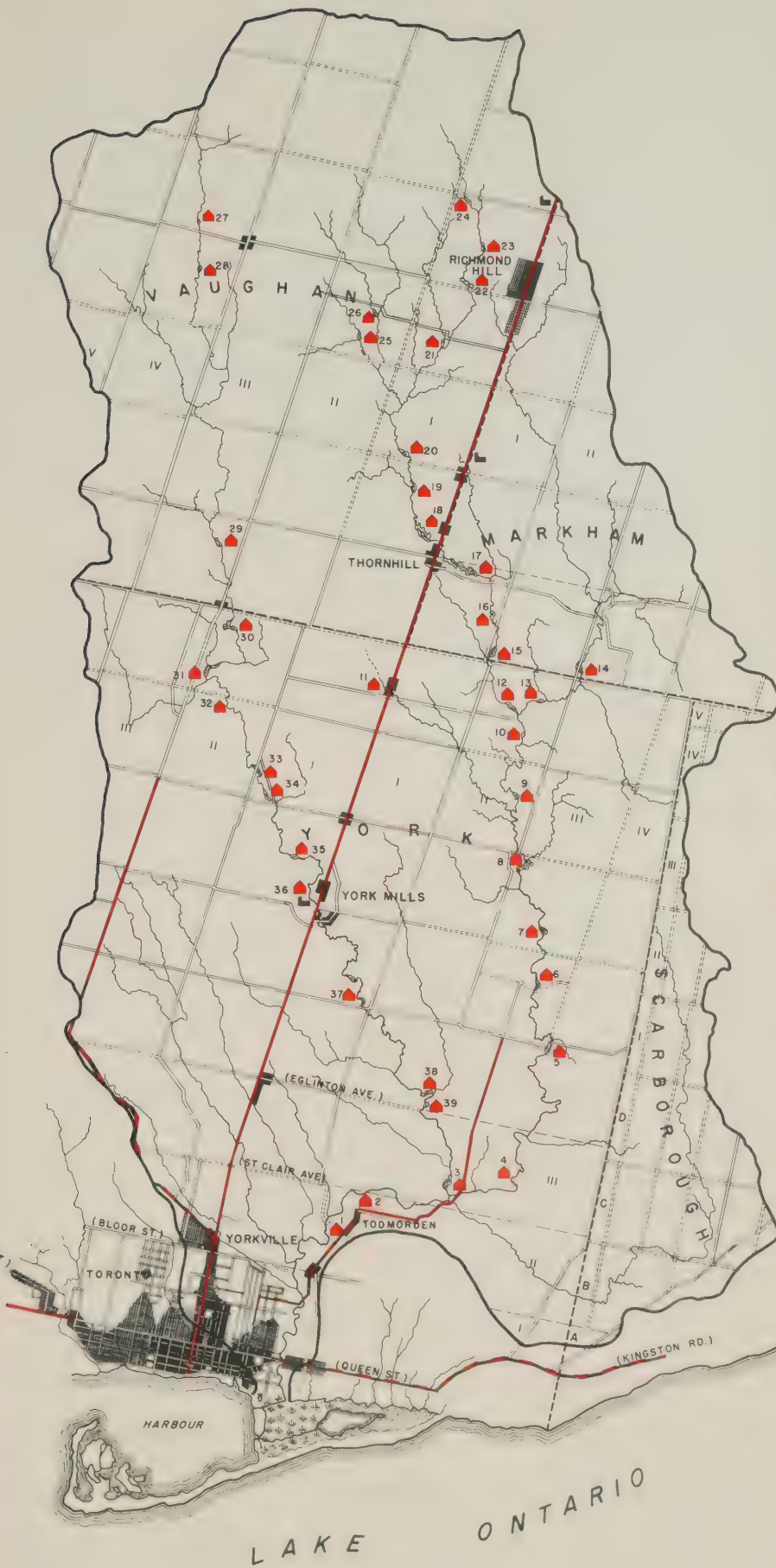
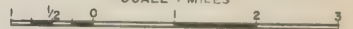
## MILLS

1. HELLIWELL & EASTWOOD'S GRIST & PAPER MILLS
2. TAYLOR'S PAPER MILL
3. TAYLOR'S PAPER & SAW MILL
4. EASTWOOD'S PAPER MILL
5. MILNE'S SAW MILL & WOOLLEN FACTORY
6. GRAY'S GRIST & SAW MILL
7. HUNTER'S SAW MILL
8. SHEPPARD'S GRIST & SAW MILL
9. PHILLIP'S SAW MILL
10. CUMMER'S SAW MILL
11. GRIST MILL
12. CUMMER'S GRIST & SAW MILL
13. DAVIDSON'S SAW MILL
14. HAMMILL'S SAW MILL
15. FISH'S GRIST & SAW MILL
16. ARNOLD'S SAW MILL
17. "POMONA MILLS" GRIST & SAW
18. MCDUGALL'S GRIST MILL
19. WRIGHT'S SAW MILL
20. DEXTER'S SAW MILL
21. LAWRENCE'S SAW & WOOLLEN MILL
22. PLAYTER'S SAW MILL
23. LANGSTAFF'S SAW MILL
24. HESLOP'S SAW MILL
25. COOK'S SAW MILL
26. COOK'S GRIST MILL
27. RUPERT'S GRIST MILL
28. LYNE'S SAW MILL
29. MICHAEL FISHER'S SAW MILL
30. FISHER'S GRIST MILL
31. JAMES' SAW MILL
32. WILSON'S MILL
33. JOS. SHEPPARD'S GRIST MILL
34. JOS. SHEPPARD'S SAW MILL
35. "YORK HILL MILLS" GRIST
36. "METCALFE MILLS" GRIST & SAW
37. SAW MILL
38. CARDING & SAW MILL
39. SAW MILL

## LEGEND

- MACADAMIZED ROADS
- PLANKED (IN PARTS)
- MAIN ROADS MORE OR LESS IMPROVED
- SIDE ROADS
- WATER MILLS
- STEAM MILLS

SCALE : MILES







combined with gravel roads, a one-way road being planked with a gravel road alongside. At other times the road was increased to double width for short stretches to provide "turn-outs"; only rarely was the planking wide enough to allow two or more vehicles abreast. Loaded waggons had the right of way on the planks at all times. All other vehicles had to turn out onto the gravel or dirt verges when a stagecoach came thundering down the planking. Long neglect could make a plank road as rough as corduroy, but even then it was free from the annoyances of mud and dust. Plank roads were mostly replaced by gravel or macadam within about fifteen or twenty years, for the expense of upkeep grew steadily greater.

The third map illustrating this chapter shows the condition of the roads about 1856.<sup>1</sup> By the end of the period most road allowances had roads of some kind along them, except where there were especially steep grades. Some of these roads had been "improved" to some extent and were in use as regular routes. The objection of property owners to the old roads crossing their lots had led to a great deal of straightening, but had not altogether eliminated the "given" roads. Several early roads, now closed, were still in use, and as late as 1851 the main routes frequently followed a roundabout course, making use of these winding roads. For example, the travelled road from Yonge Street to Markham Village in 1851 seems still to have followed the old German Mills Road, as it had in 1836, but by 1860 the main road was the present No. 7 Highway from Langstaff. On the map in W. H. Smith's book, showing only the main routes, the only road marked in the eastern part of Vaughan runs up Dufferin Street from Steele's Avenue and turns east to Yonge Street along the old given road to Richmond Hill. By 1860 the part of this old road between Dufferin and Bathurst Streets had

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1.

It is not claimed that this map is complete.



been closed and the main roads ran west from Langstaff and Thornhill, while several other side roads were in use to reach the railway. By that date the road from Elgin Mills to Victoria Square and beyond had been planked or macadamized.

A macadam road at that time was one surfaced with broken stones, without any binding material except water. The stone was often broken by hand. To save labour and expense, natural gravel was often used in Canada. In speaking of these roads the distinction between "macadam" and "gravel" was not always observed. Both were sometimes called "stone roads" and sometimes a gravelled road was said to be macadamized. However, Yonge Street and Dundas Street were covered with true macadam of broken stone, more carefully laid than was the case with the gravelled roads but not rolled. The use of gravel on the "common" roads was becoming more and more frequent. Even if the whole road was not gravelled, some stone would be used in the worst places.

(b) Railways

The opening of railways did not affect the use of the roads as much as was often the case. The Grand Trunk line just crossed the watershed at its narrowest part, but the Ontario, Simcoe and Huron Union Railway ran almost parallel to Yonge Street, from Brockton (Parkdale) to King Station, at a distance of less than three miles west of the "Street". About half of this stretch of between 16 and 17 miles lies within the Don Watershed. The "O. S. & H.R.", which was soon to become the "Northern Railway", was begun in 1851, the first large-scale railway in Canada. The first sod was turned on October 15, 1851, by Lady Elgin, attended by her husband the Governor-General, by the Mayor of Toronto (in full glory of silk stockings, knee-breeches, sword and cocked hat<sup>1</sup>), by

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1.

But with no chain of office, since none was then in use. A full account of the ceremonies and celebrations will be found in the Globe for October 16, 1851. Lady Elgin's spade-work was particularly popular.





most of the other civic and provincial dignitaries, and an applauding crowd. The work was pushed rapidly forward and the first trip was made in September 1852. Eight months later the line was complete to Aurora and reached Allandale by October 1853. It was not till January 1855 that the line was completed to Collingwood. By that time the lines running west from Toronto<sup>1</sup> were nearing completion and the Grand Trunk line to Montreal was well advanced. When the Grand Trunk was opened in December 1856, no inhabitant of the watershed was more than seven and a half miles from a railway - about an hour's drive with a good trotter.

The Northern Railway had stations at Davenport, at "Weston Station" (Downsview), "York Station" (near Elia), "Thornhill Station" (Concord) and "Richmond Hill Station" (close to the village of Maple and now called by that name). "York Station" served the villages of York Mills, Willowdale, Newtonbrook and some small mill hamlets such as Fisherville, with the surrounding country. The purpose of the other stations is sufficiently indicated by their original names. The Northern was a narrow-gauge line and remained so until 1879, when it was consolidated with the Hamilton and North Western Railway to form the Northern and North Western Railway. By that time the Northern and its branches extended to Gravenhurst and Penetang. The line was extended to Lake Nipissing in the 1880's and in 1888 became part of the Grand Trunk Railway system.

In 1867 the narrow-gauge Northern and the standard-gauge Grand Trunk were still the only railways directly serving any part of the Don Watershed. There had been a warm dispute as to whether the line should run east or west of Yonge Street, through Markham Township or through Vaughan. A pamphlet was issued in 1851 to prove that the townships

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1.

The Great Western and Hamilton and Toronto Railways. Neither of these entered the watershed.



west of Yonge Street had more water-power, were settling more rapidly and were altogether more productive and progressive than those to the east. The statistics produced to support this view, which ultimately prevailed, are very interesting. They do indicate a difference between the progress of the two areas.

The Northern Railway is said to have "sprouted mills" in its progress north, but most of the millsites on the Don were already in use. However, the opening of the railway did increase the number of grist mills and hastened the industrialization of the area. That its effect on the roads was to increase the importance of the cross-roads has been pointed out. The long-distance traffic on Dufferin, Bathurst, and Yonge Streets was much reduced. The stages were given up, but the Richmond Hill buses continued to carry the mail, for Yonge Street was too well established as an artery for the railway to take its place. Farther east the trip to the Grand Trunk was nearly as short as to the Northern, so that the Dawes Road and other main north-south roads maintained their importance. It was not till 1872 that a railway was built east of and outside the watershed, and during twenty years the southwest section was less favourably situated with regard to rail service than the north-west part of the watershed.

(c) Travel

The conditions of travel improved with the condition of the roads. Waggon's were still a common conveyance for passengers in the thirties, but after 1840 they were more often replaced by vehicles designed with a view to the comfort of their occupants. The coaches were less likely to be rickety boxes on wheels or on sleighs, with crude springs and hard seats, and liable to break down or upset at any moment. They were now usually of the famous "Concord" type, specially designed for heavy service.<sup>1</sup> Some may even have been made in

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<sup>1</sup>Weller's advertisement of 1841 shows a coach of this type. They had a moveable seat between the doors which would hold at least two people. A type with four doors and three fixed seats later came into use - chiefly as a winter coach on sleighs. Such a coach was in use as a winter "station cab" in Port Hope, up to 1914.





the famous New England factories, but there were several coach-builders in York in 1833, so that most of the stage-coaches were probably made locally. The bodies were swung on high springs of leather and steel. These gave the coaches a swaying motion, unpleasant to queasy stomachs, but reduced the bumping and jolting. The usual load was eight to nine inside passengers with perhaps one or two on top; for American coaches had no range of upper benches like those in England and "outsides" had to ride beside the driver or over the luggage "boot". For local traffic the roomier omnibus was used, with lengthwise benches for more passengers and a single door at the back.

There were hourly omnibuses from the market place in Toronto to Yorkville as early as 1846 and omnibuses came down once a day from Richmond Hill, Thornhill and York Mills and left the market place to return at 4 p.m. The stage line from Holland Landing had been sold by Weller in 1832 to Charles Thompson of Summerhill, who was running two coaches a day in 1850, from his offices in Liddell's Buildings at Church and Wellington Streets. They connected with the steamer "Morning" on Lake Simcoe and left Toronto at 7 a.m. and 3 p.m., apparently passing the down stages on the road. Another stage, connecting with the steamer "Beaver", then left the Western Hotel daily at 7 a.m. but this seems to have stopped running by 1851.

The time taken for the journey of 35 miles was probably about six or seven hours. In 1841 Weller's coaches were scheduled to make the 120 mile trip to Belleville in 24 hours, giving, with allowances for stops to change horses etc., a speed of about six miles an hour. In 1841 this may have been an ideal rate - rarely achieved in fact, but on Yonge Street in good weather it was probably often surpassed ten years later. Bad conditions could still reduce the rate of progress below that of a vigorous walker, but this was growing unusual and the passengers were rarely called



on to bring rails from the fences to heave the coach out of the mud. The omnibuses were slower, for they had usually only two horses while the stagecoaches used four. On the other hand, the buses were somewhat less liable to be overturned by careless driving. Coach upsets were common in the thirties. Later the quality of drivers and horses improved and accidents of this kind became rather rare.

The coaches and buses could hardly handle all the traffic. The traveller who failed to obtain a place, or who objected to "the promiscuous intercourse of the stagecoach" could "without difficulty obtain a vehicle for himself, an 'extra', as it is termed in Canada, and if he has a family, or a few friends join together, the expense will be very little more than travelling by the public stage".<sup>1</sup> If he was travelling alone he could hire a saddle-horse, a gig, or one of the new "buggies". Owners of carriages used them not only for short trips but also for journeys of several days. Relays of horses could sometimes be hired, but more often it was necessary to use the same horses for the whole journey and the necessity of often stopping to "bait" the horses slowed down progress. Breakdowns were not uncommon and meant more delay for solitary travellers. It was no uncommon thing to see a patient wife sitting alone in a horseless buggy, while her husband jogged uncomfortably to the nearest crossroads, ends of harness dangling by his legs, in search of a wheelwright or a harness-maker.

Less fortunate travellers were forced to trudge in the dust, with the chance of a lift in a waggon, whose driver would welcome any break in the monotony of his slow progress. Walking was a less alarming form of travel at that time, when a young man thought little of walking thirty miles to Toronto, dancing most of the night and trudging home in the morning. If the day was hot, refreshment could be had every mile or so, for there were plenty of streams. Drinking too often only made one thirstier; it was better to bathe the face

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<sup>1</sup> W. H. Smith, 1851





and let the water run over the wrists, or, best of all, to sit down bare-breeched in the stream.<sup>1</sup>

The slow rate of travel encouraged frequent stops for refreshment, even when not required to rest the horses. Mishaps sometimes made an overnight stay imperative even on a short journey. Inns and taverns multiplied along Yonge Street. By 1850 each village had from three to five hotels or inns and often one of these was older than the settlement. Others were scattered at intervals between the larger villages, at crossroads, at the top of the grades and in the valleys near the mills. The number between Yorkville and Richmond Hill about 1850 must have been between thirty and forty.<sup>2</sup> The names of the innkeepers in York Township were given to the side roads, at the corners of which their inns stood, now become "Avenues" - Wilson's, Shepherd's, Finch's and Steele's.<sup>3</sup> The inns themselves had other names, taken from their signs, like the "Blue Lion" at Yorkville, Steele's "Greenbush" on the township line, the Swan Hotel at Thornhill or the White Hart at Richmond Hill. Other names were chosen to please a particular class of clients. Among these were the Masonic Hall Hotel and the Plough Inn, both at Richmond, while

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1.

An "old Irishman", who had more than once "stopped it thirty miles to a Toronto ball", gave this advice to the late W. H. Blake, who tested it and passed it on in his "In a Fishing Country". The Irishman considered bathing too relaxing under the circumstances. His place of residence is not given but it was probably to the northward, for in other directions balls could be attended with less exertion. The probable consequences of such conduct on Yonge Street today are horrible to contemplate.

2.

There were said to be 58 on the whole of Yonge Street at about this time.

3.

These taverns were many of them about 25 years old in 1837. The tavern-keeper spelled his name Shepherd, so the avenue now celebrates a well known family of early settlers but the origin of the name is probably as stated. There was another Shepherd's Inn near Thornhill in 1850. Names of taverns changed frequently with changes of ownership. Those given are mostly from Tremaine's Map of 1860. A full study of Yonge Street Inns and their history would be of some interest.



the "Staffordshire House" at the top of the York Mills hill and Thos. Coates' "Gloucestershire House" may have recalled the landlord's place of origin. The "Halfway House" at Richmond Hill and the "Prospect Hotel" (formerly "Montgomery's" at Eglinton took their names from their location. So did the "Glebe Hotel" at Davisville, named for the lane which led through the Clergy lot to what had once been the common pasture. The name of the "Paul Pry" in the southern part of the same village is harder to explain.

On the back concessions the inns and hotels were rather less numerous, but there were well known ones at Todmorden, Don Mills, and another at the crossing of Don Mills Road and Lawrence Avenue near "Milne Hollow". Many others were to be found in other hamlets or on the main roads.

In the neighbourhood of Yorkville were a number of taverns that catered to the citizens of Toronto rather than to travellers, and other suburban resorts were to be found in the lower Don Valley.<sup>1</sup> Some of the taverns in the Don Bridge area had none too good reputations and in the 1850's were the haunt of ambiguous characters who preyed upon benighted travellers. Travel was fairly safe during the day. Stage hold-ups were not unknown before 1845, but were not frequent later in the period. Footpads, however, were still occasionally to be met with at a fairly late date and the notorious Markham Gang operated in this area.

The number of taverns and inns declined after 1853, but there were still a large number on Yonge Street when Tremaine made his map in 1860. Other hotels were added at or near the railway stations and the number in the watershed was not much less in 1867 than thirty years earlier.

The Richmond Hill bus continued to run until the building of the electric railway on Yonge Street. Station buses connected the villages with their stations. Private

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1.

The names of these places will be found in Robertson's "Landmarks" and elsewhere.





carriages continued to be used for trips to Toronto, for the distances were not great enough from most parts of the area to make the journey tedious in good weather. Waggon traffic however was now largely a matter of short hauls. Stages ran to Pine Grove and beyond until after Confederation, for the Toronto, Grey and Bruce was not completed at that date. Travel on the early railways was slow by modern standards. The wood-burning engines and the box-like coaches would seem crude to present-day travellers, but they were alarmingly modern in the 1850's. Train service was sometimes interrupted by washouts or snow drifts, derailments were frequent, though none of the serious accidents of the early days took place in the Don Watershed. However, rail travel largely did away with the annual complete break in communications while the frost came out of the ground, and the opening of the first line brought a new era to the Don.

#### 9. The Growth of Toronto

The first part of the Don area to become part of Toronto was the Government Park Reserve between Parliament Street and the river. On April 26, 1819, a number of parcels of land in and near the town of York were granted in trust to William Dummer Powell, James Baby and John Strachan, to be used for various public purposes. The "Government Park", amounting with the broken fronts to 386 acres, and several other parcels inside the town were assigned for the building and support of the General Hospital of York. The trustees had the power to sell or lease portions of the land, but until 1829 there were no assignments in the "Park" except to the Roman Catholic community, who in 1826 erected St. Paul's Church<sup>1</sup> east of the Taddle and just within the Don Watershed.

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1.

A town lot had been reserved for this purpose, but does not appear to have been used, and the trustees applied for leave to exchange it for one more suitable. The new block-house had been built by 1829.



This church fronted on the east side of a road which in 1818 led down from the "Kingston Road" a little beyond the Taddle Bridge. This road followed the top of the east bank of the Taddle Valley and so was east of the present Parliament Street. It led to the culvert over the "Little Don" and the bridge over the old outlet. These bridges had been first built in 1806. An advertisement in the York Gazette of June 7 in that year requests "that no persons will draw sand or pass with loaded waggons or carts over the new bridge or float at the opening of the Don River, as this source of communication is intended merely to accommodate the inhabitants of the town in a walk or ride to the island."<sup>1</sup> The bridges had been built by subscription and seem to have been destroyed in 1807 or 1808, for on April 1, 1808, a notice was published of a meeting to be held the following day to discuss the building of a bridge across the mouth of the Don. Subscriptions were being received by April 15. The bridges were burnt in 1813, with that on the Kingston Road, to protect the retreat of General Sheaffe's troops. The Kingston Road bridge was soon rebuilt, but it was not until June 1825 that another subscription was opened to replace those over the outlets. The new culvert and floating bridge were built by an engineer named Angel and the float was now called "Angel's Bridge". By 1833 the bridge or culvert over the "Little Don" had again been destroyed, making Angel's bridge almost useless.

The "road to Kingston" (King Street from Parliament to the Don Bridge) and the "road to Castle Frank" were included in the hospital grant, but soon became public streets in law as well as in fact. The "road to Kingston" was straightened when the first concession road or "Lot" Street (Queen Street East) was extended through the tract in 1823 and a new bridge built on the line of the new street. The new extension

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1.

This is perhaps the earliest instance of the use of the term "island". It was then more usual to call it the "Peninsula".





of King Street ended at the bridge, forming a "gore" with "Lot Street as King and Queen Streets still do at this point. <sup>1</sup>

Some assignments of land began in 1829, but they were very few until about 1831, when William Gooderham and James Worts started to build their red brick windmill beside the Harbour, between the mouths of the Taddle and the Little Don. Then the number of sales in the "Park" increased and by 1834 there were a number of householders "in the Liberty". The windmill was finished in 1832 and was in operation by October of that year. There were, in 1834, 33 frame houses of less than two storeys (including 2 shanties) on King, Palace and Windmill Streets "in the Liberty" and 6 two-storeyed houses. Only one of the latter, belonging to Enoch Turner, the brewer, was on Windmill Street. The Gooderham & Worts mill and storehouse were the only commercial buildings assessed, for Enoch Turner's brewery was a little higher up the Don. The "South Park" had all been subdivided, but in 1834 the subdivision did not extend north of the present Dundas Street East. The area bounded by Parliament, "North Park" (Sydenham), <sup>2</sup> "Pine" (Sackville) and "Beech" (Dundas) Streets was reserved as a burying ground, but does not appear to have been much used for that purpose before it was replaced by the Necropolis and St. James' Cemetery. In 1853 the Park was outside the Town of York and buildings in it are not listed in the assessment rolls. In 1834, although still only in the "Liberty", it was listed with St. Lawrence Ward and when the city limit became the Don, the "South Park" became part of that ward, while the "North Park" belonged to St. David's.

The number of buildings in the "South Park" increased in the 1830's, although they were still very scattered in 1842. There were then about twenty-three buildings

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1.

Until 1825 the Don Bridge was a little south of the line of Queen Street.

2.

The first street north of and parallel to Queen Street. "South Park" Street was parallel to King Street and south-east of it for part of its length, then turned east to the Don. It is now Eastern Avenue.



in the "North Park", mostly on North Park Street, Sumach and River Streets, for only three are shown on Queen Street. There were several industries in the area, besides the Gooderham & Worts mill (now run by steam), storehouses and distillery. There were now more large and middling houses in the "Parks", but it was already chiefly a quarter of workmen's cottages. The city limits were just south of Beech (Dundas) Street. Subdivision had been carried out as far north as Elm (Carlton) Street and as far west as Ontario Street, but no building had been done. There were a number of houses and other buildings in the Liberty beyond the Don Bridge, but this suburb was straggling and still very rural in character. During the next few years the old "Castle Frank" property was broken up. The Necropolis and St. James Cemetery were laid out and the area south of the former subdivided. There had been little building north of Carlton Street and east of Parliament Street by 1851.

In 1842 the large properties between the line of Ontario Street and Mutual Street were still undivided by public roads. Subdivision west of Mutual Street had been carried as high as Carlton Street, but the latter had not been opened. There was a stretch of woodland between Carlton and Maitland Streets. Beyond that point there were a few scattered houses along the east side of Yonge Street as far as Yorkville. To the west, however, the grounds of Elmesley Villa, Clover Hill and Barnstaple extended unbroken to the southern end of Yorkville village at Charles Street. This had been a fine stretch of woodland in the 1830's, but was now largely cleared.

This section was then in the Liberties, but these were taken into the city in 1858 and Bloor Street became the north boundary.<sup>1</sup> There had been little further

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1.

W. H. Smith says that part of the village of Yorkville was inside the "city limits" in 1851, but he may have referred to the Liberties.





subdivision before 1851. Some main streets had been opened completely like Jarvis and Sherbourne Streets, or in part like Carlton and Wellesley Streets, and some buildings had been put up<sup>1</sup>, but it was during the 1850's that most of this section was occupied and there were quite large areas that were sparsely built on in 1860.<sup>2</sup> The number of streets had been considerably increased. There were a number of large houses standing in grounds of considerable extent. But some parts of the streets were more closely built, with houses ranging from small to quite large, mostly standing free, but sometimes in pairs or in terraces. More building took place in the sixties, but there was still plenty of vacant space in 1867. The area between Queen's Park and Parliament Street was, on the whole, a fairly fashionable one in the fifties and early sixties. However, the great days of Jarvis Street above Carlton came after 1870 and this is true of much of the area around it and of the Queen's Park area.

East of the Don, the Liberty had included the area south of Queen Street and as far east as the end of Ashbridge's Bay. This area was also part of the city after 1858. There had been some subdivision as far north as Gerrard Street where the Gaol Farm began. A hundred acres of the Rosedale property had been laid out in streets and there was some building here in the sixties and seventies. Later the Michael Jarvis property was subdivided, connecting it with a subdivision existing west of Drumsnab in 1860.<sup>3</sup> Rosedale, however, was rather remote before the building of the high-level bridges and its great popularity began about the end of the last century.

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1. Residents on Carlton Street are listed in 1846.

2. Tremaine's Map of York County shows these in white. They include an area around St. Michael's College and a long strip running from Queen to Bloor between George and Sherbourne Streets. Above Winchester Street this area extends to Parliament Street.

3. Shown on Tremaine's Map, 1860.



There was no addition to the city proper until 1883, although new subdivisions were made north of Bloor Street and east of the Don. Yorkville was annexed in 1883. By that time the village extended from near Bedford Road to Sherbourne Street and north to the foot of Gallow's Hill. Riverdale followed in 1884, extending the city east to Greenwoods Avenue and north to Danforth Avenue. The next part of the watershed to be absorbed was South Rosedale, east of Sherbourne Street, in 1887. A small area near Poplar Plains Road, north of the C.P.R. tracks, and Walker and Woodlawn Avenues were the only additions in 1888.

For seven years there was only one small addition to the city. The area within the limits was filling up and extension of the built-up area into the watershed continued in a few places. The brow of the Hill was now beginning to be crowned with a new line of large mansions, far more ostentatious than the old "villas". These properties, to some extent, blocked expansion in this direction, as the old estates had done until after 1860. Nevertheless suburbs were beginning to grow up beyond the Hill between Yonge Street and Poplar Plains Road, and farther north, beyond St. Clair Avenue, in the Avenue Road and Deer Park areas. In 1905 began a new series of annexations. These brought into the city the Avenue Road area to Lonsdale Avenue (1905), two areas immediately west (1907 and 1908), North Rosedale (1906), Deer Park (1908), Wychwood and Bracondale (1909) and Dovercourt and Earlscourt (1910). With the annexation of the Montclair district in 1912, the city reached its present limit from Oriole Road to Dufferin Street, and the annexations of North Toronto and Moore Park, also in 1912, and Mount Pleasant Cemetery in 1914 practically completed the northern extension of the city. Annexations since 1920 have added only very small areas of the watershed in this part of the city, including the old Beltline right of way up the ravine east of Moore Park.





Beyond the Don, East Toronto was annexed in 1908, and other annexations in 1909 brought the eastern limit to Victoria Park Avenue and included most of the area within the present limits, north of Danforth and west of Donlands Avenue. This northern section also included the north side of Danforth to beyond Woodbine Avenue. There were further annexations north of Danforth in 1912 and 1914 and the present limits were completed in 1925.

Just as the built-up area was far from filling the city limits in 1860 or in 1890, so in 1914 there were large vacant areas still to be found within it. To the north the occupied area practically ended at the limit of 1908, except for strips of varying width along Yonge Street. Much of Moore Park was still vacant, although roads had been laid out, and there was room for expansion even in North Rosedale. In the east end, building was spotty within the parts of the Don Watershed included in the city.<sup>1</sup> Just before the First World War the city was thought to be about to expand to an unprecedented extent and there was a wave of subdivision. Land was bought up and divided into blocks, streets were pegged out and sometimes graded, and name-posts set up. New residential areas were planned and given names. The movement was speculative; the land was held for high prices and for many years signposts stood solitary in the fields north of Eglinton and east of Bathurst. There were only a few isolated houses in Armour Heights and Leaside.<sup>2</sup> A beginning had been made in Cedarvale south of the ravine and to a less extent in Forest Hill, but Old Forest Hill Road was still a country lane with hardly half-a-dozen houses in sight beyond its borders of

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1.

An area north of Riverdale Park, retained by the Scadding family for some time, did not begin to be much subdivided until 1905.

2.

Both were used for airfields during the First World War.



hawthorn and wild plum. The expansion began soon after the war, but for a time was hampered by the high price of building and by the recession in 1919-20. However, a good deal of building was done in the Danforth Avenue area, extending the residential section northward and turning Danforth into one of the longest stretches of shopping street in Toronto. In the twenties the expansion began in earnest and the suburbs planned before the war filled up fast. The bad times of the thirties checked the growth but did not stop it entirely. By 1939 the housing situation was growing acute and further expansion had begun. Greater Toronto now extended practically to Lansing, though above Eglinton the fully occupied area narrowed considerably and north of Danforth it had by no means reached its present development.

There had been no annexations of importance since 1912. The tendency was now for the new suburbs to remain<sup>1</sup> part of the township or to incorporate as villages or towns. The growing population of York Township had long since led to its division for some purposes into East and West York. The eastern part was almost purely rural in the seventies, while the western had already a large suburban population. A further division of the western part into York Township and North York Township concentrated the suburban area for a time chiefly in York Township. However, the urban area was now spreading into southern parts of North York and East York Townships, while the northern parts still remained largely rural and York Township was being constantly reduced by annexation and incorporation.

Since 1945 the process of expansion has gone on with astonishing rapidity. The rural area of North York has been greatly reduced, the urban area is expanding in East York and portions of Vaughan and Markham are becoming suburban. Before long about half the Don Watershed will be definitely in the urban area and already the problems of the region are interwoven with those of the city.

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1.

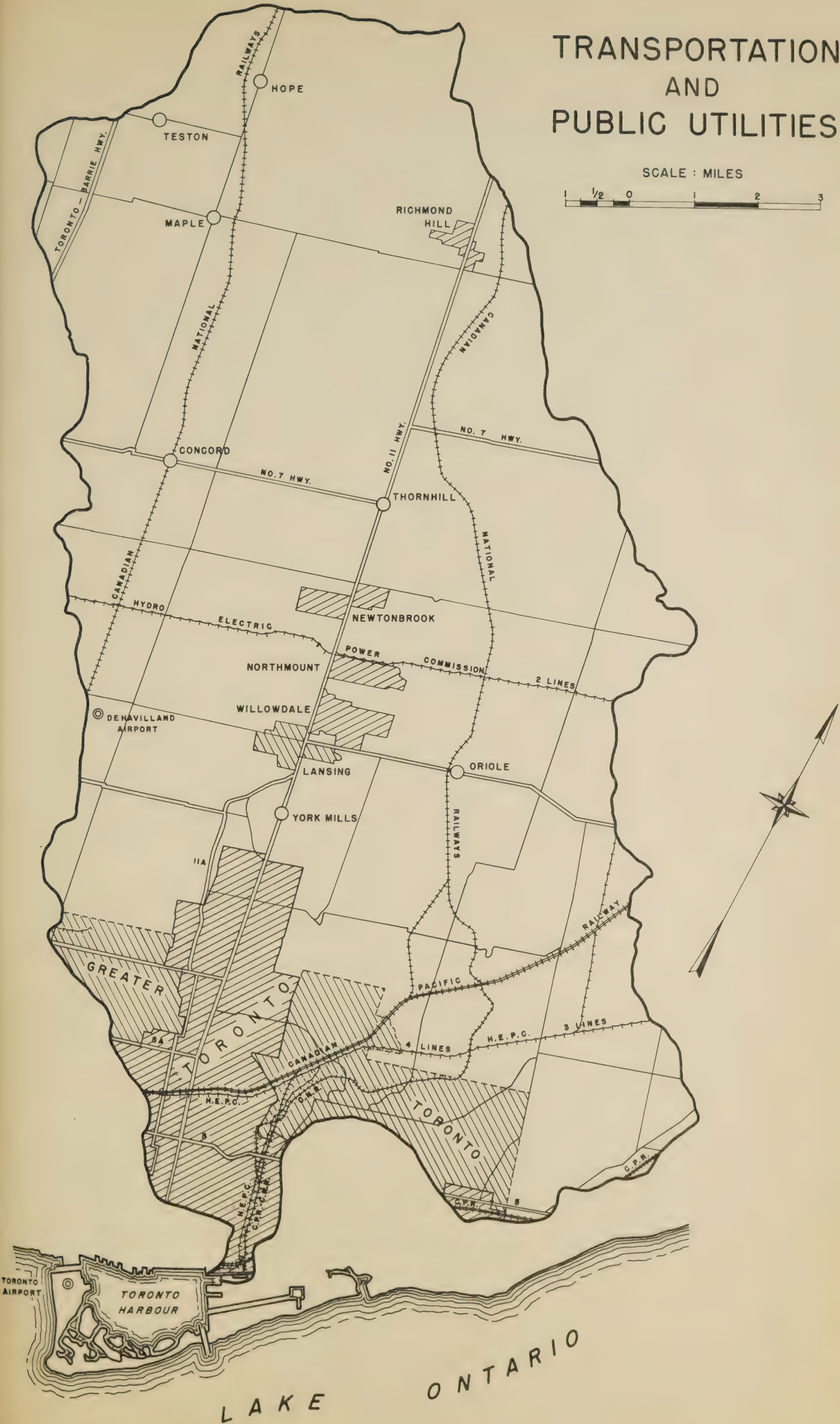
Forest Hill is a village of nearly 16,000 and Leaside a town of nearly 15,000 - both larger than some cities. No other suburb in the watershed is incorporated.





# TRANSPORTATION AND PUBLIC UTILITIES

SCALE : MILES





10. Villages, Mills and Industries

Village life within the Don Watershed did not really begin until about 1820. As might be expected, the first villages were to be found on Yonge Street. The beginnings of several could be observed in 1824 and one or two of these were already more than hamlets. By 1850 some were of good size, as villages went in those days, and appeared likely to grow into towns. However, Yorkville was already almost part of Toronto and the rapid growth of the city after the building of the railways soon began to limit the developments of the Don villages.

In the 1830's Thornhill and sometimes Yorkville were the villages usually noticed by travellers. Only Yorkville, Thornhill and Richmond Hill are given separate notices in the Canadian Gazetteer of 1846, but York Mills already had a post office and is occasionally mentioned as a village in descriptions of the area. In 1851 Smith thought it worth while to include some account of Hogg's Hollow and Todmorden, but only one new post office had been opened in the watershed. Even then, however, sizeable collections of houses appear on the sites of Davisville, Willowdale and Newton Brook in Browne's map of York Township. Browne names only Yorkville and York Mills, but in 1860 Tremaine marks Eglinton, Willowdale, L'Amaroux and Maple as post offices and "Newtonbrook", Todmorden and Thamesville (Teston) as villages without post offices.<sup>1</sup>

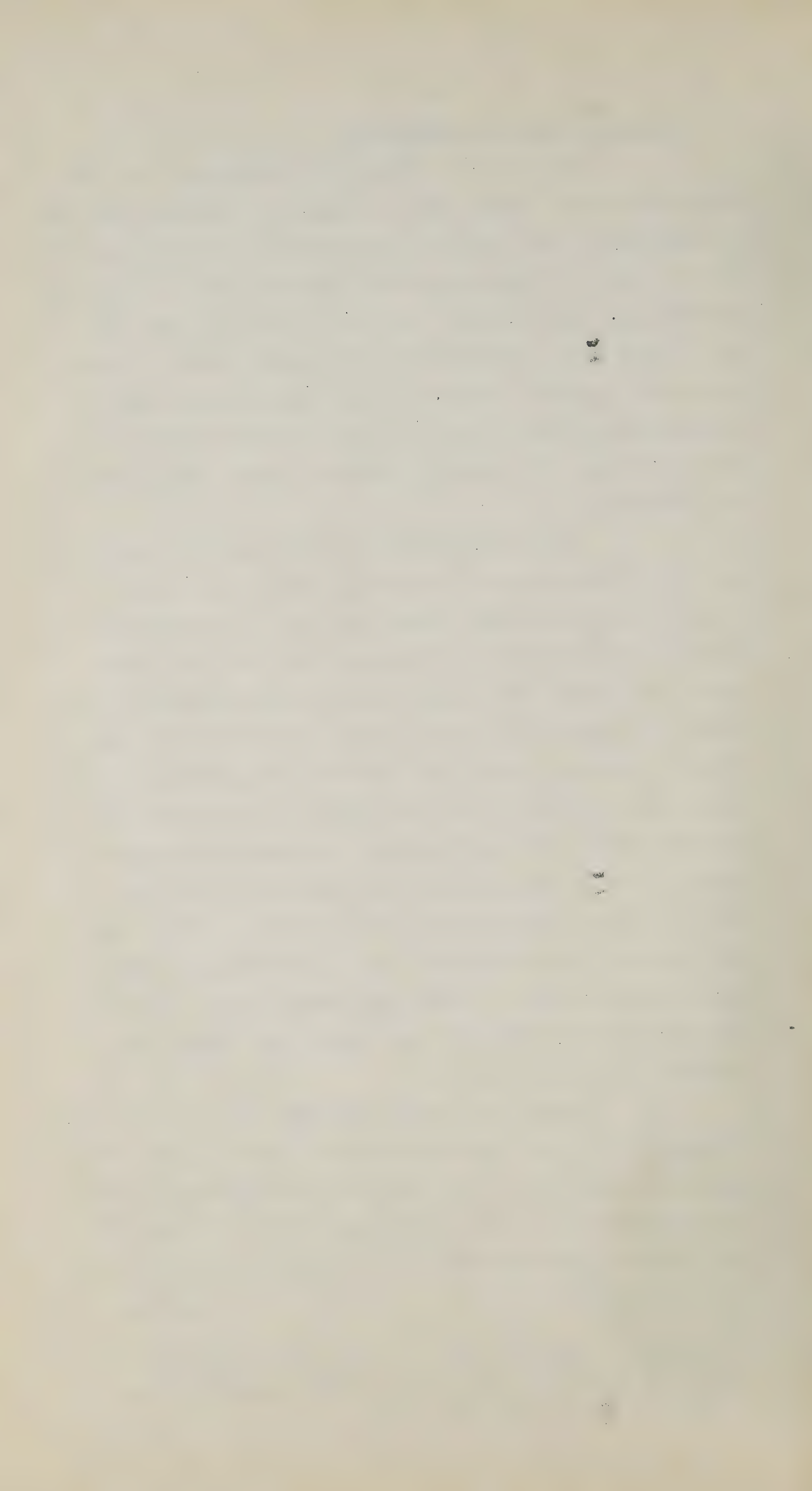
By this time many other small hamlets can be distinguished and a few years later some of these had post offices while others had been given names and are credited in directories with from 75 to 300 residents. The Don villages often owed their existence to mills but, especially after 1850, the

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1.

He marks a "Danforth P.O." in small type on the site of Danforth, but evidently does not consider it a village. Tremaine has "Newtonbrook", but "Newton Brook" was the official name of the post office.





centre of village life was frequently at a crossroads and some distance from the mills. In some, the village from the first centred around an inn or store, with the attendant blacksmith's and wheelwright's shops. A few houses and cottages would be built close by, a church or school might be added. The wheelwright's shop might become a waggon-maker's or a carriage factory, a tannery or some more specialized industry might be set up, and before long craftsmen would open shops, a second inn or store might be built, and the cluster of houses had become a village. It then might receive official recognition by the opening of a post office, but the directory-makers also list villages that were not "post-towns".

(a) York Township

(1) Yorkville

It was the pure water of the Castle Frank Brook that was largely responsible for the growth of the village of Yorkville. There would probably have been some development between the second concession road and Davenport Road in any case, but it was the good water supply that attracted the brewers, to whose establishments the village owed its first importance. A tavern and some houses were already near the site before the arrival of Joseph Bloor from York about 1830, but there was nothing that could properly be called a village. Bloor had kept an inn in York. About 1830 he moved to the second concession, acquired the south-west part of Captain Playter's former farm and built a large brewery in the Ravine near the present Huntley Street Bridge. The waters of the brook were dammed to form a pond to the west. This served both as a reservoir and a source of power. In conjunction with Sheriff Jarvis of Rosedale, Bloor laid out a village around the four corners, extending to Davenport Road. Two other breweries Copland's and Severn's<sup>1</sup> - were opened by 1835. The Blue Lion

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1. Severn's Brewery stood south of Severn Street. Copland's appears to have been farther north. The logs, bored to form water pipes, recently dug up near Belmont Street are said to have been used in connection with these breweries.



Inn was already well known and in 1837, when it figured so largely in the rising, Yorkville was a considerable village by the standards of the time. It was suburban almost from the first. Only two miles on a good road, it was an easy walk from the market-place. However, for some years it maintained a separate life of its own. By 1841 the area was populous enough for St. Paul's Church to be built on what was now beginning to be called Bloor Street, at the north-west corner of the William Jarvis Park lot. Rowland Burr, who was given the task of raising the spire<sup>1</sup> of this church, had built a woollen factory on the slope of the Ravine. It proved unsuccessful and was long known as Burr's Folly. The clay deposits of the Blue Hill began to be regularly exploited for brick making in the 1840's. This continued to be an important industry until the village became part of the city. In 1850 Yorkville was credited with a population of about one thousand. There were now three Methodist churches of different denominations. Copland's brewery had not lasted very long,<sup>2</sup> but Severn's and Rose's (Bloor's) were still operating. There were two fancy-leather factories, a distillery, a cloth factory, a comb factory and a woodenware factory. The southern part of the village, between Bloor and Charles Streets, was already in the Liberties of Toronto. Yorkville then extended east along Bloor Street to Park Road. To the west it was soon blocked by the "Potter's Field" or free burying-ground, but Cumberland Street, Yorkville Avenue and Scollard Street had been partly opened behind the graveyard. The area bounded by Collier Street and Park Road was well occupied and the village extended up Davenport Road about as far as the present Bay Street. By 1860 the village extended from Sherbourne Street to Avenue Road and as far north as Roxborough Street. The residential character of the village

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1. The spire was framed from four long pine logs, presented by Colonel Allan. It was lofty out of all proportion to the little frame church and tower and raising it, after it had been framed on the ground, was a feat requiring considerable skill.

2. The Coplands had a second brewery in Toronto.





and district is very noticeable in the Directories of 1857 and still more so ten years later. Yorkville was now very much in the same situation as Weston today. Bloor Street was lined with large houses in their own grounds. The business section stretched up Yonge Street into Davenport Road, where it had still the character of a village street.<sup>1</sup> The streets between Bloor and the Ravine were full of small houses. Apart from Severn's brewery, brick- and pottery-making was the main industry, carried on by five or six firms and employing a large number of hands. The village was a centre for builders employed in the surrounding suburbs. There had been a plan to bring water to Toronto from Castle Frank Brook in the 1830's. This seems to have been abandoned, but Yorkville had its own waterworks, with a reservoir<sup>2</sup> in what is now Ramsden Park. For the rest of its separate existence Yorkville was practically part of Toronto. When it was annexed in 1884 the industries were already disappearing; those that remained moved north to the railway line outside the old village. The business section continued to serve the district, but before 1914 was still separated from the rest of Yonge Street by a residential area, beginning to be invaded by shops. The Bloor Street area was then "up-town" to about the same extent as Eglinton Avenue is at present.

(2) York Mills

The other villages on Yonge Street in York Township never achieved the same importance as Yorkville. Hogg's Hollow was perhaps older as a village, for the building of the mills would start a hamlet before 1820 and there had been some beginnings of one at the top of the south hill years before<sup>3</sup> and on the north slope. Like Thornhill, "York Mills"

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1. It retained this character until quite recently. The Jesse Ketchum hall, built about 1853, is still partly in use as a church.

2. Shown on Tremaine's 1860 Map.

3. Something approaching a hamlet appears near the toll-bar on Lot 8, in 1851.



was really three villages or even four, since what is now called Lansing was often included.<sup>1</sup> The village got its start from James Hogg's mills east of Yonge Street, and the name Hogg's Hollow clung to this part of the settlement even after the fresh impetus of the building of the Vanostrand mills in the 1840's and the opening of the post office at the upper end of Old Yonge Street. The Vanostrand mills were the "Metcalf Mills" in the valley west of Yonge Street and the "York Hill" mill<sup>2</sup> west of the post office. From 1850 to 1860 there were groups of houses round the mills, tannery<sup>3</sup> and tavern in the hollow, and on Yonge Street west of St. John's Church, while a straggling village stretched from the Staffordshire House, near Old Yonge Street, to the Lansing Corners, where were a waggon shop, store, inn and fanning mill factory. York Mills contained between two and three hundred people during the last half of the nineteenth century. After 1878 some of the neighbouring mills closed down and there was some loss of business which was not yet compensated for by any residential development. Twenty years later the suburbs were drawing closer. During the period before 1914 and just after, the York Springs bottling plant was a flourishing industry. About 1912, when the Toronto city water was under suspicion, York Springs water-coolers were to be found in most offices and many homes. By 1912 York Mills was at the northern edge of the city, as Yorkville had been in 1860. Residential development began a few years later, though the rugged valley made this slower and less compact than in other suburbs. Large properties still preserve some of the wooded valley, but the area has developed considerably in

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1. The postmaster of York Mills is listed as living in "Milton village" in 1846; this name, then used for about five villages in the Home District, seems to have been attached to Lansing for a time. Lansing had its own post office by 1869. Shepherd's Hotel, once the "Golden Lion", was then Milton House.

2. They were advertised for sale in 1848.

3. McGlashan's Tannery. The inn was beside it.





recent years and may be considered a northern extension of Toronto.

(3) Yonge Street villages

The two hamlets north of Mount Pleasant Brook soon became practically one village, although known by different names. There were traces of a hamlet north of the sawmill in 1824 and it is probable that one of the meeting-houses listed by Goessman may have been near the Glebe road.<sup>1</sup> Another was certainly north of the site of Montgomery's Tavern. By 1830 there was a primitive pottery in operation near the Glebe road and this Davis pottery was practically the only industry in Davisville for the next fifty years. There were two taverns<sup>2</sup> there by 1837 and by 1850 the houses were comparatively closely spaced on both sides of the Street as far as the Prospect Hotel (Montgomery's). Beyond the hotel they were more scattered, but ten years later the village of Eglinton extended beyond Blythwood Road. A road had been opened to Bayview, giving access to the English Church on the Lea property at Broadway.<sup>3</sup> There was a distillery east of Eglinton in 1851 and a tannery at Lawrence Avenue, but otherwise no other industries are recorded in the 1860's or later, though there were some craftsmen. Both villages had between two and three hundred people through the rest of the nineteenth century. When a post office was established in the fifties it was placed in Eglinton, and Davisville is not listed under that name until 1871. Both had been absorbed into North Toronto by 1895, though the names continued to be used even after annexation to the city in 1912.

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<sup>1</sup>. A "Glebe Road" is marked on Browne's map. It had probably been opened to give access to a Clergy Reserve in Con. II E., set aside as "commons" in 1799, the Clergy Reserve being moved to Con. I E. This "glebe" gave its name to the "Glebe Inn".

<sup>2</sup>. The Glebe Inn and the Paul Pry Tavern.

<sup>3</sup>. Browne shows a school on the site of this church in 1851.



Willowdale was always a small place of one hundred to one hundred and fifty people. Its relation to Newton Brook was rather like that of Eglinton to Davisville. Willowdale had probably had a Methodist church since 1824, replacing a well known camp-meeting on the Cummer property to the east. By 1860 it had a post office, while Newton Brook had none, but Willowdale had no industry except the mills a mile or two to east and west, while there was a sawmill on the site of Newton Brook in 1824, and before long there were first one and then two potteries. The potteries continued to be the chief industry till 1895, but carriage- and waggon-making had begun in the sixties and grew more important in the eighties. Newton Brook was surrounded by mills of some size and roads had been opened from the village to Bathurst Street to give better access to the James mills, and eastward to the Cummer saw, grist and woollen mills. Some of the mills continued in use into the nineties and, though the carriage factories had become fewer, the village was gaining population. Ribbon development along Yonge Street was encouraged by the building of the electric railway and still more by the advent of motor transport. However, it was not till the late 1920's that the Willowdale-Newton Brook area began to be much built up, and even now the new streets do not extend much beyond the first concessions.

Of the remaining villages within the Don Watershed in York Township, only Todmorden, with the adjacent Chester, attained much importance. Leslieville, Norway and the older parts of Scarborough and Scarborough Junction lie just outside the watershed. The others were small clusters of buildings near a cross-roads or mill. Only a few had post offices, even in later times when it was the practice to open one in almost every corner store. When rural delivery was introduced these post offices were closed and what was left of the village life vanished with them. L'Amaroux, for example, an early settlement that had a post office before 1860, has





practically disappeared. It drew its importance almost entirely from the store and post office, for the churches are some distance away. Wexford, another early village on the Dawes Road, was more compact. It stretched, in 1860, north from St. Jude's Church to the Wesleyan Church at the cross-roads and east a quarter of a mile to the Rising Sun Inn. To the north-west, on the way to Milne Hollow, was the Temperance Hall. Wexford soon became the post office for the surrounding hamlets.<sup>1</sup> Milne Hollow was perhaps the most important of these and was certainly the most picturesque. It came into being after Alexander Milne moved his woollen, saw and grist mills here from its first site in the 1830's. A considerable group of buildings was to be found there by 1850 and, though the later woollen factory was torn down a few years ago, a terrace of cottages and one larger house still mark the site of Milne Hollow. Wexford developed into a residential village and is now being absorbed into the suburban area.

(4) Todmorden, Chester and Doncaster

No village appears to have grown up near Skinner's Mills until John Eastwood built his stone house in 1830. The Eastwoods and Helliwells extended the operations of the mills and by 1838, when William Helliwell built the mud-brick house still standing near his brewery, there was a group of cottages near the mills. Another group grew near a tavern on the Mill Road, close to the turn down to the mills. Even in 1850, however, most of the village of Todmorden was in the valley.<sup>2</sup> Ten years later the village was large enough to be named on the map. Todmorden then extended for about a mile from what is now Pottery Road to the church<sup>3</sup> at the corner of

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1.

In 1869 there was a "village" called "Don" which included Milne Hollow, the two hamlets to the west and Gray's Mills. It had no post office but appears in the directories.

2. Browne omits Todmorden from his map, but W. H. Smith describes it in 1851.

3. This church was finally torn down and rebuilt in 1950. Anglican and Presbyterian churches had been built in "Doncaster" before 1884.



the road to Taylor's lower paper mill. Some subdivision had begun where the Mill Road (Broadview) crossed the Don and Danforth Road, forming the village of Chester. A year or so later a post office called "Doncaster" was opened at Chester. This served a wide district including Todmorden, Chester and the village at the Forks of the Don, which before long came to be called Don Mills. "Doncaster" grew steadily into a populous suburban area with residential and business areas on the high ground and industries in the valley. Todmorden continued to be a separate village, sometimes listed separately, sometimes as part of Doncaster. In 1871 Todmorden contained about a hundred and fifty people and Chester (Doncaster) about a hundred. Todmorden doubled its population in the next twenty years, but Doncaster was more extensive and was growing more rapidly. By this time the southern part of Doncaster had been annexed to the city and the remainder was taken into the limits in 1909. Todmorden was now on the edge of the city, but remained a village until after the First World War. It is still part of East York, but in the 1920's and 30's the area to the west was gradually built up. Now the built-up area extends beyond the ravine of Taylor Creek and is crossing the East Branch, and Todmorden, like Doncaster, has been merged in Greater Toronto.

(b) Vaughan and Markham

No village grew up in Markham wholly within the Don Watershed. German Mills was never more than a hamlet. The two largest villages on the watershed lie partly in both townships. In Vaughan are the villages of Maple and Concord as well as several smaller places that once had some importance

(1) Thornhill

Thornhill may perhaps claim to be the oldest of the larger villages. The two groups of early settlers north and south of Thornhill have been noted and from the first the village was divided into two parts. It was long uncertain which would be the more important. Thornhill may be said to





date from 1801, when the first sawmill was built, but though there were taverns and a school in the neighbourhood before 1812 there can have been little resembling a village until after 1815. Purdy's grist mill, built in that year, would attract year-round traffic and the combined school and church building would be another centre. However, it was about 1820, with the arrival of William Hunter from York and Messrs. Thorne and Parsons from Dorsetshire, England, that the village began to take shape. "Squire" Parsons acquired John Lyons' Lot 33, opposite to the lot which had been Hunter's from 1798, and where the latter now built a new house<sup>1</sup> and blacksmith shop. This seems at first to have been the more important part of the village, extending to the brow of the hill north of the mills, and it was here that the church and rectory were located in 1829. However, the group of buildings near the crossroads at the top of the opposite slope was soon to become the real centre. There was an early tavern here and before long stores were opened close by.<sup>2</sup> For some time Thorne and Parsons controlled a large part of the activities in the village. Their tannery was said to be the "largest in America". They had a store and exported flour from their mills at and near Thornhill. Thornhill was "a thriving and increasing" place in 1832 and in 1836 the population was estimated at nearly 300. In 1846 there were three stores, a factory making threshing machines and other implements, and a waggon-maker's shop, besides Hunter's smithy. John Brunskill had already taken over George Playter's saw and grist mills on the German Mills Road by 1848<sup>3</sup> and was developing it into the "Pomona Mills", destined to be one of the largest flour mills on the Don. In 1850 Thornhill was said to have "received a sudden

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<sup>1</sup>. Hunter was granted Lot 33W. in 1798. He had no house there in 1801 but must surely have built one before 1820.

<sup>2</sup>. The Rev. Isaac Fiddler seems to be referring to this section as the village in 1832, though his meaning is not clear. A circus performed at Crew's Tavern, Thornhill, in 1829.

<sup>3</sup>. Brunskill advertised two farms for sale or to let near the mill in 1848.



check from the closure of the business of the late Mr. Thorn".<sup>1</sup> This seems to have referred chiefly to the tannery. The store had now become "Parsons and Willcocks". The "Thornhill Mills" were already the property of David MacDougall and before long were to rival the "Pomona Mills" in importance. There were more inns, stores and craftsmen than in 1846. The village was making a good recovery and progress continued after the opening of the railway. The list of businesses is longer in 1860 than ten years earlier. In 1869 the population is given as 750. The number of businesses is not much greater, and most of the old names are still to be found. There were now Presbyterian and Wesleyan Churches in addition to Trinity and St. Luke's. Some specialization is noticeable in the stores, and one storekeeper had added a drug store to his establishment. There had been two doctors<sup>2</sup> in Thornhill since 1850 and now the village could boast of a dentist as well. During the next twenty years the population of Thornhill continues to be reported as between six and seven hundred. There is little change during the 'seventies and 'eighties, but after 1890 the number of stores begins to decline and there are other signs of falling off of business. Before this could have much effect, Thornhill was connected to Toronto by the electric railway and was thus in a position to become a "dormitory" village for the city. The gradual disappearance of rural industry could not then be entirely offset by this new status and Thornhill was a quiet little place before the First World War, though the use of motors was beginning to make its connection with the city even closer. After the War the movement from the city became more rapid, as golf clubs and country estates replaced the old mill properties. Thornhill was soon established as a residential village with growing population.

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1.  
W. H. Smith, 1851.

2.  
Dr. Jamieson and Dr. Paget. Dr. John Langstaff is listed under Richmond Hill.





(2) Richmond Hill

The origin and history of Richmond Hill are similar to those of Thornhill and somewhat interwoven, for the intervening hamlets were at first considered to belong sometimes to the one and sometimes to the other village. Richmond Hill will have begun to be a centre with the removal of Abner Miles from York between 1802 and 1805. "Squire" Miles played a considerable part in the early life of the village. At first the hamlet was a posting stage that changed gradually into a market town, rather than a mill village, and for this reason it grew somewhat more slowly than its rival. There was no mill site in the village, and it is not certain that any mills had been built near it, when the Duke of Richmond is supposed to have paid his visit in 1819. By that time the building of the Presbyterian Church and school had marked the emergence of the place as a centre and the Governor-General is believed to have given permission for the village to be called by his name.<sup>1</sup> As the halfway point to Holland Landing the Richmond Hill taverns had an extra importance. Nevertheless the village was small enough in the 1830's for some travellers to omit all mention of it. In 1846 it had more stores and taverns than Thornhill and several craftsmen, but as it still had no mills or tannery its population was only about one hundred and forty. A second church had been built and it is very likely that a third congregation was in existence, even if they had no church building. During the next four years there was great progress. Not only had the inns and stores increased in number; there were many more craftsmen, a tannery had been opened, and Dickson's large steam grist mill at Elgin Mills was considered to belong to the place. W. H. Smith calls the village "a smart little place" and remarks that

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<sup>1</sup>. This is the traditional account of the origin of the name. The Duke was already infected with hydrophobia when he visited York in 1818. He died in Richmond Township after a visit to the new settlement.



"It is difficult to calculate the number of inhabitants, the houses being so scattered that it is scarcely safe to say what should be comprised within the legitimate limits of the village. The publishers of Directories found the same difficulty, and it is therefore uncertain whether H. Langstaff's distillery properly belonged to Richmond Hill or not, while some of the millers and sawyers who gave it as their post town and are listed under Richmond Hill in 1851 or 1860 can be definitely placed several miles away. This even applies to the doctors, for Dr. John Langstaff lived much nearer Thornhill. The principal merchant was Matthew Teefy, who was also postmaster and insurance agent. There were seven other stores, for Richmond Hill was now the center of the district, as it was long to remain. In 1860 the village was growing more compact, and shows on Tremaine's Map much as it now does on the topographic sheets, with several cross streets, longer to the west of Yonge Street. However, it was still the practice to regard everyone between the toll-gate at Langstaff and the one at Elgin Mills as living in Richmond Hill. This added some sawmills and a third tannery to the industries of the village. Even Patterson's Agricultural Implement Works is listed as well as O. S. Richmond's works and foundry. In 1869 the population was between eight and nine hundred. Fewer mills are listed, for the opening of new post offices was lessening the practice of including neighbouring plants.<sup>1</sup> The division court had sat in Richmond Hill since before 1850 and the village even then had its own weekly paper, The York Herald. There was now a grammar school and a private ladies' school. Builders and carpenters had been attracted by the wave of building which began in the forties, and now two professed architects were numbered among the professional men. A second newspaper, The Liberal, was started about 1870.<sup>2</sup> The population remained about nine hundred for the next thirty years or

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1.

Langstaff had its own post office by 1869.

2.

It is listed in 1871 but not in 1869.





so. After 1878 the number of mills began to decline, but the small industries were still flourishing in the 1880's and Richmond Hill was able to maintain its position with little change up to 1888. By about 1890 the small plants were giving place to the large city firms, while the competition of the city stores was affecting the retail trade. Some signs of decline are noticeable by 1895. Better communication by rail, both steam and electric, brought some advantage and even in the early years of this century Richmond Hill had still much of the look of a thriving country town. It still had some independent industry and still served the surrounding country as a centre. Population began to grow as quicker transportation brought new residents. Richmond Hill has now a population of between 1,500 and 1,600, exclusive of the developments outside village limits. It is still far enough from Toronto to maintain its separate existence to a great extent, but near enough to serve almost as a suburb. It will be many years, however, before Richmond Hill will become entirely suburban.

(3) Maple and Sherwood

There had been a post office called "Rupert" near the site of Maple in 1851. In 1824 the old road to Albion had crossed the third concession a quarter of a mile south of the present sideroad and continued west till near Line's saw-mill. It then turned north past the spot where Rupert's grist mill stood in 1860. Goessman places the Lutheran church and school south of Sherwood and the first beginnings of a village may have been near that crossroad. However, by 1860 the village of Maple had become the third in size in this part of Vaughan, and Sherwood was only a small hamlet with two blacksmiths' shops and a church. Maple appears much as it is today - a cross-shaped village of some size. Its population was probably about a hundred to a hundred and fifty. The village was a centre for farmers, with grist mill stores, blacksmiths' and waggon shops. "Richmond Hill Station" then lay a little north-east of the crossroads. A few years later shingle-making and



carriage-building were being carried on and woollen goods manufactured. Dickinson's mills included a planing, saw and flour mill. Except for the weaving, these activities continued through the rest of the century. The population increased and by the nineties was reckoned about four hundred. Until recently Maple had changed very little since the 1880's. It is still a country village and a fairly prosperous one. The surrounding area is altering only very slowly. The water mills have gone, but the curious octagon house by the grist mill is still standing. The village has still several stores, and service stations take the place of blacksmiths' shops and harness-makers'. The next few years may see great changes, but at present the area between Concord and Maple is more rural than most of the Don Watershed.

(4) Smaller villages

"Thamesville", north-west of Maple, seems to have grown up between the old road and the crossing of the surveyed roads. It was large enough to appear on the map in 1860. Soon after, the name was changed to Teston when the post office was opened. Two waggon shops were the chief stay of the village through the last century, developing into carriage factories and maintaining the population at a little over one hundred. It is now hardly more than an isolated country store.

Carrville was a mill village, dependent on Cook's mills and some others near by. It already had two churches and a school in 1860 near the crossroads and a store at the lane to the Cook mills. The population was about one hundred until the 1890's, when it had begun to decline, although the two flour mills were still running. Patterson was larger than these villages in the number of its inhabitants, but was purely a factory village with little besides the implement factory, cottages and a boarding-house for the workmen and later a church and schoolhouse. A sawmill was built there in 1854 and a few years later the implement factory was in operation. This grew in scale during the sixties, as the use of machinery





increased, and soon the village had nearly two hundred inhabitants. The number increased as the business grew, but when the plant was moved to Toronto the village disappeared and only the school now marks the site.

Concord is as old as these villages, for there was a straggling settlement along Dufferin Street, where it crosses No. 7 Highway, in the 1850's or possibly earlier. However, it was the new settlement at "Thornhill Station" that grew into the present village of Concord. It is described as "a small post village" in 1869 and seems to have had few residents in the 1880's, though its importance as a centre was increasing. A brickyard had been opened by 1892 and the population had increased. Concord grew larger as the other small villages declined and, though not a large village, it is now a fairly thriving place and of some importance as a shipping point.

Those of the larger villages that have not been absorbed into Greater Toronto are now increasing in population, but, as has been pointed out, many of those of about a hundred people began to disappear about the beginning of this century; some, like Teston and Elia, have shrunk to almost nothing and mill hamlets like Fisherville and Milne Hollow have disappeared. These places, where they have retained their names, may have a new lease on life in the near future as outer suburbs or dormitory villages. This is happening to the railway villages like Donlands and Oriole in East York and may affect others farther north and west. It is noticeable that some villages are in a healthy state in the part of the watershed least affected by urbanization, though, in the extreme northern part, one or two have suffered from the decline in agriculture due to loss of fertility.



(c) Mills and Industries

(1) Mills

The growth of the milling industry between 1824 and 1851 is illustrated by the third map, dated approximately 1852. Rebuildings, removals, constant changes of ownership and the lack of any detailed maps of Vaughan and Markham Townships before 1860 make the development of the Don mills in this period difficult to follow in detail. This difficulty is increased by errors, misprints and contradictions in the published sources. There are some mistakes and some omissions in the map. The omissions are sometimes due to lack of definite evidence that a mill was running at the date selected. The map does not mark the peak of milling on the Don. More mills were built in the next few years and some sawmills were given up or converted to other uses. The 27 sawmills shown on Tremaine's Map of 1860 are not exactly the same as those on the map for 1852, and the number of grist mills was then 23. This probably represents the peak for sawmills and possibly for grist mills run by water. The peak for carding mills was about 1850.

By 1850 steam was already being used for both grist and sawmills. Steam grist mills were still very few in 1860 and the number increased slowly, though it became more common to use steam as auxiliary power. In the case of sawmills the use of steam was usual by 1880 and portable sawmills in the modern sense were the rule in the 'eighties and 'nineties.<sup>1</sup> Wood-working mills, such as shingle, planing and turning mills, began to appear in the 1850's and lath mills in the 1860's. The latter were few in the Don area, but shingles were being made in some of the villages in Vaughan in the 1870's and planing and turning mills, or "sash, blind and door" factories, were to be found in several places in the last quarter of the century. The number of "grist" mills specializing in flour began to increase in the late 'forties. By 1870 many of these

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<sup>1</sup> The boilers of the "portable" sawmills of the 1850's had to be dismantled before they could be moved.





were flour mills only and a distinction between "flour" and "grist" mills had come into general use. By 1878 some water sawmills were disappearing and lumbering had become small in scale, concerned chiefly with the local demand and even then facing competition from other areas. The great attack on woodlots of Southern Ontario in the 1880's may have begun somewhat earlier in the Don area. It was carried on chiefly by portable steam mills and by 1895 it was profitable for some owners of sawmills to buy old log barns and convert them into lumber. The flood of 1878 was the end of some grist mills; some had already disappeared, and others were converted to steam. A fairly large number of flour mills continued to operate till the turn of the century and a few were still in use up to about 1914. Since that time almost all have closed down and only two of the old frame water mills remain standing. There are, however, two or three steam grist or chop mills still in operation. Tremaine shows only two woollen factories in 1860. The two "manufacturers of woollen goods" listed in Maple in 1869 may have woven by hand. In the early 1850's there had been two "wool factories" and one or two carding mills in York Township and perhaps about the same number in the northern part of the watershed. The only important woollen mill on the Don was the Milne mill on Lawrence Avenue. This mill operated until after the end of the century and the main building was still standing not long ago.

(2) Carriage-building

The process of absorption of rural industry, going on in many places at that time was particularly common in the Toronto area. It helped to destroy a type of industry that was the mainstay of many of the smaller villages. Wheelwrights were to be found very early and often combined the trade with blacksmithing. Some made waggons as well as repairing them and by 1850 waggon-makers were more numerous and carriage-makers were not uncommon. The demand was large and steady. Bad roads shortened the life of light vehicles, yet



most families in the country were unwilling to be without one carriage, if they could possibly afford it. In the cities a vehicle was nearly as necessary and "keeping a carriage" was a mark of prestige. For this reason the number of carriages was only slightly reduced by the organization of public conveyances, while in the country it was hardly affected by the building of railways, though this had some effect on the demand for waggons. A climate that made sleighs necessary in most winters doubled the number of vehicles needed, and a well-to-do family might have four or even six. Livery stables added to the demand. To supply it, carriage factories multiplied in the 1860's and for thirty years or more were to be found all over the watershed. The growing facilities for hiring vehicles reduced the number of private carriages towards the end of the century, in the villages as well as in the city, and the building of the electric railway line and more steam railways had a similar effect. However, even after the motorcar appeared, most people remained dependent on horsedrawn transport for short trips. Already the demand was being met chiefly by large plants and the small factories were beginning to disappear some years before the motor was a serious rival to the horse.

### (3) Brewing and Distilling

One of the earliest breweries in York was near the eastern blockhouse, but this was probably on the Taddle rather than the Don. However, there was a brewery below the end of Winchester Street in the 1830's and this continued to operate about thirty years. Helliwell's brewery at Todmorden was in operation in 1827 and the Yorkville breweries a few years later. Helliwell's was burnt before 1860. Bloor's and Copland's Yorkville breweries had closed before 1857, but Severn's continued for more than thirty years after. Brewing tended to concentrate in Toronto and the few breweries in the upper watershed were not long-lived. Two breweries were situated in the part of the city within the watershed in 1869, and the buildings of one near the Don River are still in use for this purpose.





Distilleries also suffered from the competition of those within the city. A distillery was the usual accompaniment of grist mills up to 1850. None are listed on the Don in 1824, though Eastwood's at Todmorden was probably in existence.<sup>1</sup> Some appear later, but like the breweries they were of little importance outside Toronto. Of the two in the city in 1851, Gooderham's was probably outside the watershed but Croker's on Palace Street was possibly farther east.

(4) Brickmaking

Simcoe had proposed to open a brickyard near the garrison in 1792, but the bricks for the first brick building in York are said to have been burned at the Blue Hill near Yorkville.<sup>2</sup> At that time, even in England, bricks were often burned as they were wanted, one or more kilns at a time, frequently close to the site of the building. This seems to have been the practice in York County in early times. It was not till after 1825, when the use of brick had become much more common, that permanent brickyards were opened and brick-making became a business rather than a trade.<sup>3</sup> The regular brickyards near Yorkville and in the lower valley would appear to have begun about the same time, around 1840. There was more than one brickyard in Yorkville by 1850. This industry grew to considerable proportions and continued until the available deposits were exhausted and the city had grown beyond the area. The yellowish-white brick turned out by the Yorkville yards was widely used in the part of the city above College Street, and many buildings built of it can still be seen, some dating from the 'fifties or even earlier. W. H. Smith

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1. It was certainly there in 1827. Goessman's report ignores this part of the Don.

2. The two wings of the "Palace" at the foot of Parliament Street built in 1798 and used for the legislature to 1813. The statement of the origin of the bricks stems from Dr. Scadding.

3. William Jarvis writes in September 1813 that there was "not a brick to be got in York except a kiln that belonged to the late John McDonnell consisting of 19,000 and Duncan Cameron will not sell one without the whole and 1,000 is more than I want" (U.C. Sundries, Bureau of Archives, Ottawa). Jarvis is asking to use bricks from the burned Parliament Buildings



says that "immense" quantities of bricks were made near Yorkville in 1851, but organized brickmaking firms did not appear till somewhat later. The first Don clay pits seem to have been nearer the city than the present ones and some of the brickmakers lived in the "Park" area in 1846.<sup>1</sup> Later pits nearer Todmorden were opened. By 1880 the Todmorden brickyards were becoming important and they are still among the largest in this part of Ontario. The itinerant brickmakers were still plying their trade in the watershed in the 'fifties and 'sixties and many houses still standing are built of bricks burned on the property. Some small brickyards appeared after 1880 in Vaughan Township, but these had only a local importance. The early potteries at Davisville and Newton Brook have been mentioned in connection with those villages. Pottery was also made at Yorkville and Todmorden.

(5) Paper mills

In 1825 the second paper mill in Upper Canada, the York Paper Mills, was built by John Eastwood and Colin Skinner near the Skinner Mills at Todmorden. Later the Helliwells<sup>2</sup> became concerned in the business and in the 'fifties there may have been two paper mills at Todmorden. John Taylor had built his paper and saw mill on the West Branch a little above the Forks before 1850, and in 1851 John Eastwood had another on the East Branch, east and north of Taylor's. The changes of ownership of these mills are difficult to unravel, as the evidence of the Directories and other contemporary sources does not coincide with the published accounts.<sup>3</sup>

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1. These were tradesmen or workmen, not owners of yards.

2. Thomas, Joseph and William Helliwell were brothers-in-law of both Eastwood and Skinner. They came to Canada from Todmorden in Yorkshire and to York from Niagara about 1820. - Robertson's "Landmarks".

3. The difficulty is partly resolved by reading 1857 instead of 1847 in Robertson's account of the burning of Helliwell's brewery and thus bringing it into agreement with the Directories and Tremaine's Map. Even so it is difficult to follow the activities of the Helliwell family, who owned mills at the Rouge as well.





Eastwoods, Helliwells and Taylors were all making and selling paper in 1857 and there are indications that the Helliwells' connection with the Todmorden paper mill did not terminate till after 1860. By that time John Taylor and his brothers had a second mill near the site of the present plant and possibly one on the site of Helliwell's Brewery. A few years later the Todmorden paper mills were all the property of the Taylor firm. The modern plant in the valley north of Todmorden is the representative of these early mills.

Among industries at Todmorden in 1827 was "Shepherd's Axe-grinding Machinery", and for many years the Helliwells had a starch factory there. A considerable list of small plants of various kinds which flourished in the watershed could be added if space permitted. Many were short-lived, but some flourished for a generation or two. Some have already been recorded in this or the preceding section. Almost all have been absorbed by larger firms. The industrial development has been very rapid in some parts of the watershed in recent years. Leaside is a manufacturing town and similar concentrations of industry have been formed or are now being formed in other parts of the area. It is likely that the Don Watershed will soon be even more heavily industrialized, but in a very different way from the small-scale, dispersed industry of the 1880's and 1890's.



11. The Watershed since 1867

Much of the story of the Don area after 1867 has already been told in the last three sections. It is not necessary to treat this period in detail. Settlement was practically completed before Confederation and some parts of the watershed were to change very little in their outward aspect during two generations. Even in these areas, however, some influences were at work which have a direct bearing on the need for conservation.

The seventies, eighties and nineties were a period of difficulty and change for Ontario farmers. In the late 1860's, while grain-growing was still at its height, complaints of loss of fertility on Ontario farms already began to be heard. Farmers had suffered heavily from various pests and some now found that they could no longer grow as heavy crops on their grain ground or produce wheat of as good quality. These deficiencies became more marked after 1870, when Ontario wheat was already feeling the competition of the American West. Before long the Canadian Prairies were also exporting wheat and the price of Ontario wheat began to decline on the Toronto market.<sup>1</sup> One effect of lowered production was an increase in the area of cultivated land achieved by clearing of bushland and by draining wet lands. In 1863 it was still taken for granted that a settler would clear only about two-thirds of the land he took up, and this was about the average on farms until 1865. In the seventies the proportion of woodland was reduced and underdrainage began to be more common<sup>2</sup>, increasing rapidly in the next twenty years. At the same time there was an increase in the demand for cordwood and, after 1870, an

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1. This was the general trend, though there were rather violent fluctuations in price.

2. Tiles for farm drainage began to be made in Ontario about 1865. In 1869 two firms were making them in Yorkville and before long others are to be found in the watershed.





increasing demand for sawlogs of smaller diameter. The old selective cutting was being given up in the 1850's and clean-cutting was being recommended, but until after 1865 it was hardly worth while to cut immature trees for lumber<sup>1</sup> or to buy second-growth stands. In the 1870's and 1880's the scarcity of pine was forcing lumbermen to go farther and farther away for their supplies, and a number of other factors combined to hasten the exploitation of the remaining woodlands in the long-settled townships. It was in this very period of the early 1880's that many farmers were feeling the effects of uncertain markets and were therefore more ready to sell their woodlots, which had now had time to recover from the lumbering of the fifties. A somewhat similar state of affairs occurred in the 1890's and led to further cutting of woodlots. Where the cut-over land was not taken into cultivation it now often became part of the permanent pasture and the stock were now sufficiently numerous to restrict the young growth.<sup>2</sup> In many of the older townships there was probably less woodland in the 1890's than at any other decade.

In the Don area the effect of these influences was probably less marked than in other parts of the Province. Exhaustion and erosion of the soil would be found only in a few small areas and on individual farms, but the practices which were intended to correct them were adopted early in the area, for they formed part of the modern type of farming. The dependence on one type of crop had never been complete in Ontario, and in the Don area it was even less so. The area certainly shared the agricultural depression responsible for the establishment of the Royal Commission on Agriculture of 1880-81. However, the kind of mixed farming, with specialization

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<sup>1</sup>. See Chapter 2, Section 5, of Forestry (Part III)

<sup>2</sup>. Open range had long since been given up and as the farms were cleared, it was more convenient for various reasons to keep the stock in fenced pastures, rather than in the woodlots of thirty acres or more. On recently "chopped" fields, the cattle kept down the shoots from the stumps.



in one line or another, that was being substituted for grain-growing, had already made considerable progress in the Toronto region before that date. The introduction of cheese factories in 1866 had rather less effect in this area than in most of the Province. Some factories were built, but they were never very numerous. The dairy farmers of the area already had some market for whole milk as well as butter and cheese. Creameries are found in one or two villages in the 1880's. The Don farmer already had a good local market for their beef, pork and mutton in the 1850's. The keeping of sheep grew less common, for very little of the area was especially adapted to it. The local demand for horses, horse-feed and hay was already considerable when other parts of Ontario began to turn, in the 1880's, to horse-breeding for the American market. When the electrification of street railways reduced the demand about ten years later, the need for dray-horses and delivery horses in Toronto was already very great. The thousands of horses in the city required great quantities of feed and the slow procession of hay waggons down Jarvis Street to the weigh-house was a regular morning feature of the early 1900's.<sup>1</sup> There were still a great many horses in Toronto at the end of the First World War, but the number dwindled rapidly during the next ten years. The outlet for this type of produce was gradually reduced, but its place was taken by others. Market and nursery gardens were to be found very early in the Don area, though some of the best known ones lay just outside. By the 1880's some of these had become important and small-scale truck farming was making some progress. Poultry farming was another activity encouraged by the city market. Subdivision of farm land, already noticeable in 1860, was partly the result of a demand for the products of intensive cultivation.

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1. They chose Jarvis to avoid the street-cars and were considered a danger to children and bicyclists, for the drivers, perched on top of their loads almost on a level with the second-floor windows, had a limited view of the street.





Competition for markets forced the most conservative Ontario farmers to adopt better practices and, as before, this change came earlier in the Toronto area than in some neighbouring regions. Good farmers were the rule in the area, and in the seventies it was still usual for the owners of estates to be improving farmers, even if their main interests were in the city. Later, farming went out of fashion to some extent and, with some notable exceptions, country places were usually kept for recreation rather than as productive farms. After 1900 this trend was gradually reversed, the movement from the city encouraged interest in the land, and many estate owners took the lead in applying new techniques. This interest in practical farming on the part of business and professional men was attracting public attention in the 1930's and is still noticeable in the Don area.

While life in the city was changing rapidly in the last quarter of the nineteenth century, the change in rural living was much slower. There were many small improvements, but the fundamental arrangements were little altered. Social life was better organized and the steady improvement of communication gave greater opportunities, but the occasions for social intercourse were much the same as before. After 1895 a good deal of "modern comfort" was available to the average city dweller of moderate means, though in a rudimentary form, but its installation in a country house was still costly and the upkeep very troublesome. Most people, even in the villages, still had to do without gaslight, central heating and inside plumbing. The rural telephone was the first great improvement, to be followed in this century by rural electricity. It was electricity and the motor-car that largely closed the gap between the living standards of the city and country and made possible the great suburban development of the past twenty-five years.



During the seventies the decline of rural population in Vaughan Township began to be noticeable in the census returns. The following figures<sup>1</sup> illustrate the fluctuations during this period.

Year	Markham	Vaughan
1851	7,752	7,539
1861	8,658	7,955
1871	8,152	7,657
1881	6,375	6,828
1891	5,681	5,292
1901	5,378	4,586
1911	5,328	4,398
1921	5,267	5,080
1931	6,331	5,468
1941	7,134	5,829
1948	6,425	6,420
1950	8,224	8,598

The loss of population in Markham between 1871 and 1881 is partly accounted for by the separation from the township of Markham Village (954 in 1881) and part of Richmond Hill (867 in 1881), and the separation of the remainder of Richmond Hill from Vaughan Township also explains part of the heavy loss in that township. However, both townships lost heavily in the seventies and still more heavily in the two following decades. The widespread decline in rural population in Ontario during the last quarter of the nineteenth century is often set down to the emigration to the West. This played a considerable part in the movement, but in the Don area the attraction of the city must have been at least equally strong. Neither of these influences would have produced such a marked effect if it had not been for a decline in rural prosperity and a change in farm economy. The decline in prosperity made

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1. It is generally assumed that the censuses before 1871 were unreliable. However, the opinion is that in 1842 and 1851 the totals were too low and the error in 1861 cannot be very great. The sharp drop in the population in Markham Township between 1941 and 1948 would be due chiefly to the incorporation of Stouffville. The figures for York Township and the three townships into which it was divided have little significance for the Don area.

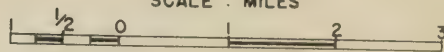




# POPULATION

1 DOT REPRESENTS 100 PEOPLE

SCALE : MILES





the support of part of the population difficult at the same time that the increased use of machinery reduced the number of hands needed on the average farm. Mechanization did not have its full effect until after 1880, when the binder came into general use, but the shortage of labour was already developing in the 1870's and increased the use of machinery on the farms. After 1890 decline of the village population hastened the trend, which continued until after 1911. The rapid growth of Toronto after 1920 soon began to affect the upper part of the watershed. There had been some recovery by 1941, but it was not until very recently that the population of these townships equalled that of 1871. How far the figures for the whole townships are representative of the parts included within the Don Watershed is difficult to determine. The shrinkage of rural population would not affect the areas near Yonge Street as soon or as much as the back concessions, but they would feel the decline of village populations in the nineties even more than the more remote areas. The only area that shows definite marks of depopulation is the extreme northern edge of the watershed, west of Jefferson. Here some considerable areas of farm land were abandoned. However, there can be no doubt that the watershed above Steele's Avenue was more populous in 1871 than it was thirty years later.









## CHAPTER 1

### GENERAL CONSIDERATIONS

#### 1. Purpose of the Survey

A soil conservation survey is made to obtain an inventory of the soil resources of an area and of the use to which the land is being put. From these observations an estimation is made of the capability of the soil and the extent to which use is adapted to capability. The specific forms of land use and types of management can then be worked out which will give the best returns from the land at the same time sustaining or improving its capability.

The inventory of soils is made in terms of the types of soil which can be recognized and presented in a map. Further to the actual types of soil, observations are made of the degree and extent of erosion and erodibility and any other features which restrict the use of the land.

The capability of the soil can be rated according to the experience of those who have worked the land in the area and in terms of what is known about the soils, erosion and fertility loss from scientific analysis of these problems. Recommended use and management is based on what has been proven to be sound in the area and wherever the same soils and conditions have been found.

The soil conservation survey is the first step in instituting a soil conservation program. The purpose of such a program is to adjust land use and management to the capabilities of the soil so that soil and water resources are used to the greatest advantage for all.

#### 2. Definition of Soil

Soil is the top, weathered portion of the unconsolidated material on the surface of the earth in which seeds find optimum conditions for germination and from which plants draw moisture and sustenance. The soil is formed by





the action of weather and living organisms on the mineral material on the surface of the earth. It has its own properties and characteristics which can be observed and measured and according to which it can be identified and classified.

A vertical cross section of soil reveals levels with different physical, chemical and biological characteristics. These levels are called "horizons". The complete section is called a "soil profile". A soil is described in terms of the number, size, arrangement and properties of the horizons in its profile.

The soils in Southern Ontario were formed under a vegetative cover of hardwoods and mixed hardwoods on glacial drift in a cool moist climate. The greatest effect of weather has been the surplus water which percolated downwards through the soil. The chief effect of the native vegetation has been, in the microbial decomposition of leaves and wood, the production of acids which are washed downward by the surplus water. The combination of the effect of vegetation and weather is called "podzolization". Resisting this action to some extent are the lime and magnesium carbonates found to a greater or less extent in the mineral material.

The soil-forming process produces a profile which, in general, conforms to the following description given in tabular form:

<u>Designation</u> of <u>Horizon</u>	<u>Description</u>	<u>Names</u>
A0	Decomposed organic material (found only in soils undisturbed by cultivation).	Leaf mould, humus
A1	Decomposed organic material and microbes mixed with mineral matter (clay, sand, etc.). Black or dark brown in colour, friable or crumbly in structure.	Topsoil
A2	Mineral material with finer particles (colloids) and basic compounds (iron, calcium, etc.) leached out. Powdery, pale yellow or gray in colour.	Zone of leaching or elluviation, considered part of topsoil



<u>Designation</u> of <u>Horizon</u>	<u>Description</u>	<u>Names</u>
B	Reddish brown in colour, nut structured or crumbly, heavier in texture than top-soil and usually heavier than lower horizons, has some free lime carbonates only at the bottom, higher proportion of colloids and iron. In inadequately drained soils the brownish colour is mottled with gray.	Zone of accumulation or illuviation, commonly called subsoil
C	Clay, silt, sand or loam may be stony, unweathered and lacking in special properties of higher horizons. Free carbonates may be present, there is no accumulation of iron so that colour is more gray than brown.	Parent material

### 3. Classification of Soils

Since climate and vegetation are the chief agents in soil formation, there are great differences between soils in the main climatic zones. The soils of Southern Ontario belong to the zonal group called the "gray-brown forest (or podzolic) soils".

Because the mineral material was deposited a relatively short time ago the weathering action has not been complete. The soils are considered as "immature" in that the influence of the parent material is still very obvious. Within the gray-brown forest group of soils the next division is according to the parent material. As the parent material was deposited by ice, the mode of deposition, or physiographic origin, is used to classify the soils. Soils which are developed on similar material with the same mode of deposition belong to the same "association".

Within one association of soils there are different degrees of soil formation depending on different balances of the various soil-building forces. The main factor in soil building is moisture, so that the soils in an association may be classed according to natural internal drainage.





Three degrees of drainage are recognized:

- |                     |  |
|---------------------|--|
| Well drained        | - optimum profile development                        |
| Imperfectly drained | - lower horizons shallower,<br>different development |
| Poorly drained      | - poor profile development                           |

Soils developed on the same material and having similar profiles belong to the same "series". Thus, in one association, there may be three series of soils corresponding to the three drainage classes outlined above. A soil series is given the name of the locality in which it was first found and identified - for example, Peel, Chinguacousy and Milliken - three of the series found on the Don Watershed.

The three series found in one association carry their own names. It is sometimes convenient to apply the name to the series with good drainage and optimum profile development, and refer to the others as the "imperfectly drained" and "poorly drained" associates of the first series. When to the name of a series is added a textural class - as "loam", "clay loam" or "sandy loam" - a "soil type" is identified. Thus "Peel clay loam" and "Milliken loam" are soil types found on the watershed.

The textural classes mentioned above refer to the size of particles, or "soil separates". The finest particles are clay, the coarsest are gravel, and textures are graded as clay, silt, sand or gravel - a mixture of these is called loam. Clay with a small admixture of other separates is called "clay loam"; "sandy loam" and "silty loam" are also found. The textural class is largely determined by the nature of the parent material, so that all the series in one association are likely to have the same textural designation.

The soil classification here described is a systematic one and may be used in identifying a sample of soil taken from any one site. When it comes to mapping soils, it is impossible to be specific. In the first place, there are gradations from one soil type to another, and some soil cannot



be specifically allotted to one type or another. Secondly, there are not sharp boundaries in nature. Therefore, when soils are indicated on a map it is the average, or dominant, feature within that boundary which is specified. For example, an area on a soil map designated as Milliken loam is an area in which most of the soil has the characteristics of the type identified as Milliken loam.

#### 4. Erosion

Surface run-off of water removes soil material which is either deposited in the valleys or carried away by streams. This wearing action is restricted by vegetation - either grass, herbs or trees - so that it does not proceed very rapidly. As the upper horizons of the soil are removed, weathering penetrates the parent material and the soil profile is maintained. This is called "normal" or "geologic" erosion. When the protecting vegetative cover is removed and the topsoil is disturbed by cultivation, the process of erosion is speeded up and the top horizons of the soil are worn away at a greater rate than the profile can be built. This is "accelerated" erosion, and is what is meant in referring to "erosion" throughout this report.

Erosion is easily recognized through the fresh deposits of soil at the bottoms of slopes commonly called "soil wash". When the headward erosion of streams in their courses cut into the soil, gullies are formed, and this type of erosion is called "gullying".

Three types of water erosion can be described - "sheet", "rill" and "gully". Sheet erosion is that which is commonly called soil wash. When sheet erosion has proceeded until much of the soil profile has been removed, the exposed subsoil and parent material are more liable to gullying. Gullies in many cases are merely the evidence of severe sheet erosion, which in itself is less obvious.

Rill erosion is done by water flowing downhill





in small channels. The water may find such channels in mud cracks or small irregularities in the surface, or commonly in wheel tracks and drill rows. Rills may be obscured by subsequent cultivation, but if they become entrenched they can soon develop into gullies.

In a soil conservation survey, it is necessary to estimate and classify the degree of erosion and the steepness of slopes. The following tables give the slope groups and estimated degrees of erosion set up by the United States Soil Conservation Service and adapted for use in Ontario.

<u>Smooth Slopes</u>		<u>Hummocky Topography (Irregular Slopes)</u>	
<u>Symbol</u>	<u>Average or Predominant Slope in Per Cent</u>	<u>Symbol</u>	<u>Average or Predominant Slope in Per Cent</u>
A	0-2	M	0-7
B	2-6	N	7-15
C	6-10	P	15-25
D	10-15	R	over 25
E	15-20		
F	20-30		
G	over 30		

(For example, a rise of 30 feet in a run of 100 feet).

Estimated degrees of sheet erosion:

- 0 - no apparent erosion.
- 1 - less than 1/3 topsoil removed.
- 2 - 1/3 to 2/3 topsoil removed.
- 3 - 2/3 topsoil but less than 1/3 subsoil.
- 4 - all topsoil and 1/3 to 2/3 subsoil.
- 5 - all topsoil and more than 2/3 subsoil.

These grades are used in detailed mapping such as that done in farm planning or in a survey of a small area. In less detailed mapping of a larger area, like that of a whole watershed, three grades may be used as follows:



- 1 - evidence of some erosion.
- 3 - erosion into subsoil.
- 5 - serious erosion with all or most of original soil removed.

## 5. Present Land Use

The chief forms of land use are:

- Urban - (housing, industry, etc.)
- Recreational - (parks, golf courses, etc.)
- Agricultural

Soil conservation is mostly concerned with agricultural land which may be broken down as follows:

- Cultivated - (in a crop rotation).
- Pastured - (wild pasture, or tame pasture, left in sod for a period longer than the usual rotation).
- Woodland - (which may or may not be grazed, but which is not cultivated).
- Idle land - (not forested and with neither grazing nor cultivation).

These are listed in order of decreasing intensity of use.

Pastured, wooded and idle lands are less susceptible to erosion than cultivated land.

Cultivated land may be further classified with reference to the uses which expose it to erosion as follows:

Fallow.

Intertilled row crops.

Grain.

Hay and pasture (in rotation).

Fallow is the most susceptible to erosion; sod for hay and pasture, the least.

## 6. Methods of Survey

### (a) Personnel

The field work of the survey is done by undergraduates and graduates in geography and agriculture of Ontario universities. They work in pairs so arranged as to include a senior and a junior student, one of whom is familiar with farm operations.





(b) Equipment

Each pair of men travel in a jeep. They are equipped with a tiling spade for exposing the soil, a soil auger for bringing up samples of soil from depths down to three feet and a bottle of dilute hydrochloric acid for determining presence of free lime carbonates (found only at the bottom of a soil profile). An Abney level is used for measuring the slope of the land. Topographic maps on a scale of one inch to one mile, and aerial photographs (scale one inch to 1,000 feet) are used as base maps on which field data are plotted.

Aerial photographs also are valuable in revealing features which are impossible or difficult to trace from the ground. Surface drainage patterns; boundaries between soil types, especially where internal drainage differs; crops and types of vegetation and surface relief are all distinguishable on aerial photographs. The use of the photographs make the survey quicker, cheaper and more accurate than it would be without them.

(c) Procedure

All roads and accessible lanes are traversed by vehicles. Where features cannot be seen from the vehicle or interpreted from the photographs, the land is traversed by foot. In areas where detailed work is done every field is visited on foot.

The soil is examined for identification wherever exposed in road cuts and excavations. Features of the profile, especially depth where erosion is estimated, are observed by use of the soil auger.

Slopes are measured by use of the Abney level. Where the slope is mapped, the slope group into which most of the land of a unit area falls is indicated. After some practice with the instrument, field men can assess the slope class of land by inspection, subject to checking by instrument.

The degree of erosion is revealed in examination



of the profile. If, for instance, a soil type has an average profile depth of three feet, one cannot get a reaction with dilute acid within that depth. When a soil, recognizable as that particular type, gives a reaction to acid at two feet and the characteristic A1 and A2 horizons cannot be distinguished, erosion of grade 3 is estimated.

Present land use is observed directly in the field (or identified from aerial photographs). Where the type of pasture cannot be classified from field observation, or a crop has not been planted, the farmer may give the information.

The area to be surveyed is divided into strips, usually using the concessions, and assigned to pairs of field men. When the mapping is done, the adjacent strips are compared on the map. When boundaries are subject to personal judgment, they may not match from one strip to another. Together with the supervisor, the mapping parties check boundaries in the field and arrive at a compromise which can be taken as a fair representation of the conditions found. In this way the map becomes as accurate as possible within the limits of possible error.

## 7. The Land Use Capability Classification

A system of classifying land with respect to the need for conservation measures has been worked out by the United States Department of Agriculture Soil Conservation Service. With due consideration to differences in conditions in geographic regions, it can be applied in Ontario and is used by the Farm Planning Service at the Agricultural College and in the river valley conservation surveys. It is called the Land Use Capability Classification. It was applied to all the agricultural land on the Don Watershed.

The following table outlines the classification :<sup>1</sup>

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1.

"Classifying Land for Conservation Farming", United States Department of Agriculture, Farmers' Bulletin, No. 1853.





Land Suitable for Cultivation

- I - With no special practices for soil improvement or conservation.
- II - With simple practices for soil improvement or conservation.
- III - With intensive practices for soil improvement or conservation.

Land Suitable for Occasional or Limited Cultivation

- IV - With limited use and intensive practices.

Land Not Suitable for Cultivation, But Suitable for Permanent Vegetation

- V - With no restrictions or special practices.
- VI - With moderate restrictions in use.
- VII - With severe restrictions in use.

Land Not Suitable for Cultivation, Grazing or Forestry

- VIII - Suitable only for wildlife.

Simple practices to restore and improve soil or to protect it against erosion include mulching, green manure crops and winter cover, open drains on imperfectly drained soil and cultivation on the contour. Intensive practices include tile drainage of poorly drained land and a system of contour cultivation, strip cropping, diversion terraces and grassed waterways to check erosion.

For Class IV, VI and VII land, restrictions in use are applied so as to maintain a permanent vegetative cover and to prevent the soil from being opened up to erosion. They include, on meadow and pastureland, restricted or rotational grazing, and in forested land managed tree cutting. In all cases, vehicle tracks and log skids must be kept from opening up rills or gullies.

Class I land can be farmed by ordinary good farming practices, proper rotations, use of good seed, applying natural or artificial manure, as indicated by crop response, and so forth. Under good management, the land can be expected



to sustain good yields without any depreciation or losses due to erosion. Lower classes of land, if used in the manner specified, can give sustained yields without further deterioration. Without special management or restrictions in use, the lower classes of land will give progressively smaller returns and will deteriorate.

Factors which downgrade soils in this classification are:

Low inherent fertility

Low organic content

Erosion

Slope and susceptibility to erosion

Soil compaction and poor tilth

Inadequacy of natural surface and internal drainage

Topographic restrictions in use of implements, and a number of features such as draughtiness, stoniness and shallowness over bedrock (which, however, are not commonly found on this watershed).

It has previously been stated that the aim of a soil conservation program is to adapt the use and management of land to its capabilities. Two further points must be stressed. First is the importance of good use of Class I land and land of high inherent fertility requiring artificial drainage to bring into optimum use. Unless the fertile land is used to greatest advantage the demand for production, either on the individual farm or in a region, puts a burden on the lands of lower capabilities which only makes them poorer.

The second point is with respect to water. Contour cultivation and cropping programs designed to restore and sustain organic content in the soil can check erosion and save the soil. Of equal or even greater importance is the conservation of moisture. The measures that save the soil also increase the capacity of the soil to absorb and retain moisture. This benefits agriculture directly and the streams indirectly.

## 8. Farm Ponds

Increasing demands for water for domestic,





industrial and agricultural use and diminishing underground supplies have made the whole problem of supply a critical one.

Throughout Ontario soil conservation surveys have shown that grassland is the most important single factor in soil conservation. The major use of grassland is for grazing and herds require adequate and dependable supplies of water. It was noted in the discussion of climate that, although the annual precipitation is adequate, summer supplies are inadequate. Control of surface flow and storing of water should go a long way to meet demands for water. Other uses are for fire protection, recreation, domestic supply, irrigation, waterfowl and fish.

Little or nothing has been published about ponds in Ontario, although it has become an important phase of conservation work in the United States. A special study of ponds was made on the Don with the purpose of establishing an inventory of ponds and to determine, from existing structures, what might be done in extending the practice of building farm ponds.



## CHAPTER 2

### SOILS

The following soil types are indicated on the<sup>1</sup>  
Soil map of York County, and are found on the Don Watershed:

Pontypool sand  
Brighton sand  
Milliken sandy loam  
Milliken loam  
Peel clay  
Simcoe clay  
Brookston clay  
Colwood loam  
Fox sandy loam  
Berrien sandy loam  
Chinguacousy clay loam  
Bottom land

The following paragraphs describe these soils.

#### 1. Pontypool Sand

A small belt of about 1,000 acres of this soil stretches from the first to the third concession west of Richmond Hill and Elgin Mills. Much of it is wooded or in pasture. Steep topography, erosion and low organic content limit severely its agricultural use.

This soil is part of the interlobate moraine. Slopes are steep and irregular, valleys have no permanent streams because the soil is very permeable and the water table is low. The rugged relief is due to the way in which material was deposited by the swirling meltwaters under the edge of the glacier. The sands and gravels are roughly stratified.

The soil profile is quite deep, sometimes ex-

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1.

Ontario Soil Survey, Soils Department, Ontario Agricultural College and Experimental Farm Service, Dominion Department of Agriculture.





ceeding three feet, because the material is so permeable. The topsoil is a brownish sandy loam shading to a grayish-yellow dusty sand in the A2 horizon. The B horizon is yellow and brown, shading into the grayish coloured sandy parent material. The chemical reaction is nearly neutral because of the lime content of the parent material. Original forest cover was probably mixed hardwood or coniferous. Some old pines are found and modern plantations of conifers thrive.

## 2. Brighton Sand

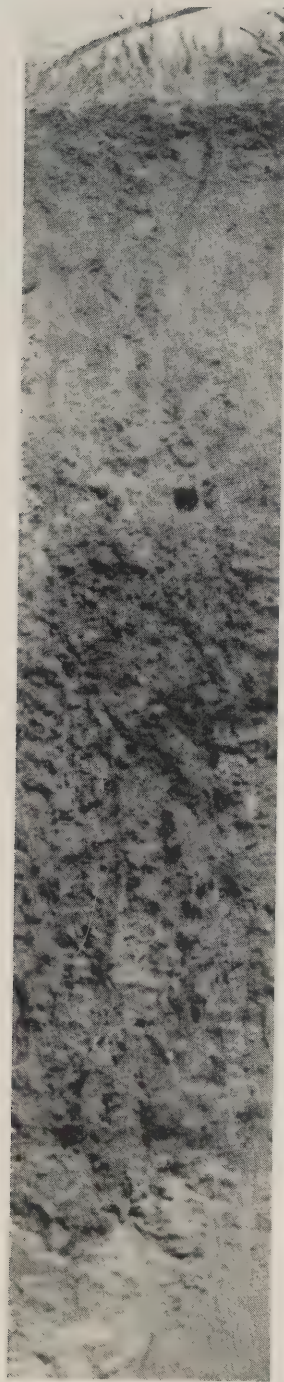
On the flanks of the hills between Maple and Richmond Hill is found the Brighton sand. This soil is nearly as heavily wooded as the Pontypool - some farms have been relegated to pasture, a few are still worked and the soil has proven eminently suitable for potatoes. Erosion, low organic content and susceptibility to drought are the chief limiting factors in its use.

The surface relief is fairly steep with irregularly shaped valleys cutting across the area. Both the Pontypool and Brighton areas have been deeply cut into for commercial gravel and sand.

These deposits may be classed as outwash plains, formed by meltwaters issuing from the glacier. The material is more uniformly stratified than the Pontypool. The sand has a fair proportion of lime and the beds contain some thin layers of marl.

The profile of this soil is variable in depth but shallow on the average. A good exposure can be seen on Dufferin Street, two sideroads north of Maple. The topsoil is brown shading into pale yellow in the A2 horizon. The B horizon is a darker yellow shading into a reddish-brown at the level of maximum accumulation of iron. This dark layer is more compact than either the topsoil or parent material. In a broad exposure the dark coloured horizon can be seen dipping up and down. Like the Pontypool soil, Brighton sand had a cover of





A1  
6" HUMUS BEARING HORIZON  
Dark brown, friable loam.

A2  
4.5" HORIZON OF LEACHING  
Gray, powdery loam

B  
29" HORIZON OF ACCUMULATION  
Compact, nut structured, reddish-brown and brown clay loam.

C  
PARENT MATERIAL, Compact clay, till deposit, some stones and boulders, shale and limestone

## SOIL PROFILE

*Profile of a typical, well-developed gray-brown forest soil formed on calcareous and shaly till material in Ontario.*





mixed hardwood or conifers before it was cleared for settlement.

### 3. Milliken Sandy Loam

On the northern margin of the watershed there are a few hundred acres of Milliken sandy loam. It is cultivated to a greater extent than the Pontypool and Brighton soils adjacent to it. The surface is rolling to hilly and steepest slopes are mostly wooded. Coarse, open texture, droughtiness and lower inherent fertility lower its value as agricultural land. This soil is part of the interlobate moraine. It is a light till, loamy, with finer particles of clay lacking in the topsoil, hence its classification as a sandy loam.

The topsoil is similar to that of Pontypool sand but there is a heavier subsoil and some small stones throughout the profile. The parent material is not stratified, even roughly as in the Pontypool. Light texture and steep topography have exposed the soil to considerable erosion.

### 4. Milliken Loam

A broad belt of this soil, two or three miles wide, extends across the watershed on the southern flank of the Maple and Richmond Hill ridge. Long fingers extend southeasterly across the Peel Plain. Large areas also occupy the south-eastern corner of the watershed from Steeles Avenue to Scarborough. Parts of North York and Scarborough close to Toronto are built up. Most of the area of this soil is in farmland. It carries the full range of crops climatically suited to the region. It is susceptible to erosion on slopes.

The surface relief is undulating to rolling with the characteristic ridge and hollow features referred to earlier. On the Peel plain it is common to find Milliken loam on the ridges, which are there subdued, and Peel clay in the hollows. The material was deposited under the ice, as the glacier advanced, in the form of a till plain. The material is



a loam and includes clay, silt, sand, small stones and few boulders (the presence of boulders in fences and farm buildings often indicates that the soil of that locality is Milliken loam). There is a fairly high proportion of lime; the small stones are shale and lime (derived from nearby bedrock) and crystalline rocks transported from the Shield.

The soil profile is a very good example of a gray-brown forest soil, developed on medium-textured calcareous till. It is illustrated photographically and diagrammatically in the accompanying illustration. The topsoil is crumbly and easy to work. The subsoil has a rich brown colour and a characteristic nut structure, that is when dry it will break into fragments about 1/16 to 1/8 inch looking like very exaggerated coffee grounds. Undisturbed it cleaves, when dry, into clods about the size of walnuts. This structure and its medium texture allow aeration and free percolation so that the weathering processes have carried the profile downward three feet or more.

##### 5. Peel Clay

This soil predominates on the Peel clay plain which covers the northern part of North York Township and the southern parts of Vaughan and Markham Townships. Peel clay and Milliken loam are the two most extensive soils in area on the watershed and both of them are rich agricultural soils. Some of the Peel clay has been covered with buildings and some lies idle in subdivisions but most of it is still under agricultural use.

The surface relief is flat or undulating with steep slopes only near the main watercourses. Deposition by water of clay and silt over the loamy till or reworking of the loam by water, with finer particles redeposited on the surface, are the reasons for the heavier texture of Peel clay. A layer of grit in the lower horizons is further evidence of the influence of water. The soil is generally free of stones and





# SOILS



In the soil profile of Berrien sandy loam the deep leached horizon is clearly seen between the dark topsoil and dark (reddish brown) subsoil.



Peel clay, when worked, breaks up into heavy massive clods.



The full profile of Milliken loam is exposed right down to the parent material in this excavation. The deeper coloured subsoil (B horizon) stands out clearly.





boulders although where the veneer of clay is thin some stones are present. There is quite a high proportion of lime in the soil material.

The profile of Peel clay is about 20 to 30 inches deep (shallower, on the average, than Milliken). The topsoil is a very dark brown clay loam shading into a grayish-yellow loam in the A2 horizon. Topsoil averages about eight inches in depth, including two inches of A2 horizon. The subsoil is a foot to a foot and one-half deep, is dark chocolate brown in colour (looks much lighter when dry) and has a typical nut structure. When dry it crumbles to fragments like buckwheat. When wet it is a massive, very sticky clay.

Silt and grit are often found in a thin layer at the bottom of the subsoil where the colour changes from brown to gray. A platy, compacted layer a fraction of an inch thick is sometimes found at the top level of the B horizon. This compaction may be the result of deep ploughing - there being a tendency for heavy clay soils to form compacted layers under cultivation.

Within areas of Peel clay loam there are smaller, low-lying areas with inadequate surface drainage or a high water table. In these situations, the soil has a shallower profile with a deep topsoil, little or no horizon of leaching and thin subsoil which is mottled brown and gray. This may be called the "imperfectly drained associate of Peel clay". Improvement of surface drainage in small areas, or under-draining with tile improves this soil to the same capability level as Peel clay.

## 6. Simcoe Clay

About 1,000 acres of Simcoe clay is indicated at Concord. It is included within the wide area of Peel clay and may be associated with it. It is imperfectly drained having a deep black topsoil and a shallow, mottled gray subsoil. The soil material is variable with layers of silt, clay and silty





clay. The topography is quite flat and the soil is almost entirely free from stones. Most of this soil has been drained artificially with both ditches and tile. It supports some very fine farms.

#### 7. Brookston Clay

The only area of any size is one of a few hundred acres on Bayview, one mile north of No. 7 Highway. This soil is the poorly drained associate of Peel clay. On the Bayview location of this soil, there is a large stand of elm which is typical of poorly drained sites. Small areas of soils which could be classified as Brookston clay are included in poorly drained sites on the whole of the Peel plain. They are too small to include in a Soil map on the scale of one inch to one mile but they would be accounted for in a detailed map of one farm.

The profile includes about 10 inches of very dark topsoil and about 10 inches of gray, mottled, very sticky subsoil. The lime content is quite high. There are very few stones, or none at all. The inherent fertility is high, but the soil has very restricted use until artificially drained.

#### 8. Colwood Loam

In the valley south of the observatory at Richmond Hill there is a patch of soil identified as Colwood loam. There are some market gardens and suburban small holdings located on this soil. The land is quite flat except where a stream valley cuts through it. This represents a deposit of silt during the ponding which formed the Peel plain.

The soil is poorly drained because of its position and possibly because of a layer of heavy clay under the silt. Profile development is poor. There is a deep black topsoil and a gray slightly mottled subsoil. Layers of silt and clay give a variable appearance to the soil from place to place. When this soil is artificially drained, and well



managed with respect to organic content, it appears to be well suited to horticulture.

#### 9. Fox Sandy Loam

There is one notable patch of this soil where the third concession road (Leslie Street) crosses Steeles Avenue. The largest stretch of it fills the area between the Danforth and O'Connor Drive, and there are small areas in the city near Bloor Street. Whenever the city's built-up area has reached a patch of this soil, building development has been rapid as it is well suited to both residential building and horticulture. It is not a very valuable agricultural soil but in areas outside the city is desirable for rural retreats for city people.

The usual topography of Fox sandy loam is flat, but it is deeply dissected and hilly near main watercourses. The sandy deposits were made in sandbars at the mouths of streams flowing into the Peel ponding or into Lake Iroquois.

The Fox series is a well drained soil which, because of the very permeable material, has a deep profile that extends downwards from four to seven feet. The cultivated horizon of the topsoil has a five or six inch depth of brown sandy loam, stone free and very friable. The A2 horizon varies in depth from one to three feet, is loose and powdery when dry, and has a light brown or yellowish colour. The subsoil may be a few inches or two feet in depth and consists of a reddish-brown sandy loam with a loose, nut structure and more compact than the upper horizons or the parent material. The C horizon is a gray sand or gravelly sand with a high proportion of lime.

Rapid decrease in organic content under cultivation limits the agricultural use of this soil but for horticulture it is very desirable.

#### 10. Berrien Sandy Loam

In the suburban development of the Toronto





region, this is a very interesting soil. There are big patches of it near Bayview and Finch's, at Oriole and from Leaside to the Don Mills Road. It is very highly prized for gardening and for elaborately landscaped country estates. In some locations it requires artificial drainage, but under intensive use the cost of this is warranted.

Except where the land is dissected by streams it lies relatively flat. The sand was deposited along beaches or in deltas in both the Peel ponding and Lake Iroquois. The sand is shallow over clay. The profile development is usually entirely within the sand and reflects the imperfections in drainage caused by the impermeability of the clay.

The topsoil includes a cultivated horizon of gray-brown sandy loam and a leached horizon of a foot or more of yellow sand. The subsoil is a foot and one-half to two feet of mottled brown and gray sandy loam. The parent material is a gray, calcareous, stone-free sand underlain by clay or clay loam. The total depth of sand runs from two to six feet.

#### 11. Chinguacousy Clay Loam

On Dufferin Street, just north of the city limits, and in North York around St. Andrews golf course, there are areas of this soil. Much of it is now built up, but it was formerly a fairly good soil for general farming.

This soil is formed on a heavy till material. The topography is undulating to gently rolling. The high proportion and compaction of the clay restrict internal drainage. The topsoil is a light brown clay loam with a yellowish leached horizon. The subsoil is a bright brown colour, mottled with reddish-brown and gray. There are a few shaly stones throughout the profile. The soil does not crumble as well as Peel or Milliken, and when wet it is a very massive, sticky clay.

#### 12. Bottom Land

Along the river flats, the soil is the product of recent deposition. It is subject to flooding with fresh



deposits of silt. During the wet seasons, the land may be saturated with water. These circumstances limit the use of bottom land for agricultural purposes to permanent grass or forest cover. In a few special cases, where drainage can be improved, they are used for market gardening and horticulture. Otherwise, they have a high value for recreational use.





## EROSION

Soil wash and small rills have deposited a mass of sediment at the bottom of a mild slope.



Spring thaw and early rains did this in a few days. Sheet erosion, or wash, rill erosion and, finally, gullies are shown here.



A spring freshet running over grass does not cut into the soil.







CHAPTER 3  
PRESENT LAND USE

1. Main Divisions

The land of the Don Watershed has a wide variety of use from the most intensive urban in downtown Toronto to bush and wasteland in the northern part of Vaughan Township. From the industrial and commercial centre of Toronto near the mouth of the river to the headwaters there are quite clearly recognizable zones of land use. At the river mouth are the port and rail facilities with industries. Surrounding the industrial zone is a belt of commercial and financial houses. The residential and retail zone of the city covers the lower five miles of the watershed, with some incidental recreational use of the river valley itself.

Surrounding the city proper is an urban zone of separate municipalities, including Scarborough, Leaside and East York in which the pattern of the city is repeated with rail service, industry, commercial and residential buildings. Beyond the urban zones is the "rural-urban fringe". This is characterized by residential areas, most of which have fewer urban facilities than the city and essentially "suburban" in character, small holdings, stretches of "sub-divided" land which are currently used for nothing but which are presumed to be future residential areas, a few industries, some recreational land and the nuclei of old villages.

The largest and widest zone is agricultural, devoted largely to production of fluid milk for the Toronto market. This belt also reflects strongly the influence of the city with many examples of land use not typical of a farming region. The zone furthest from the city has a less specialized form of agriculture, but the stretches of bush and wasteland have special uses induced by the nearness to the city.

2. Urban Land

Although the history of the growth of Toronto





may be related to some extent to the physiography, the present situation bears little or no relation to the soil pattern. The streams are mostly carried in the city sewer system and the land is effectively drained. The main river itself is important to the urbanized land in the two rather conflicting interests of recreation and sewage disposal. In the survey of land use, all the area completely built up was classed as urban with no further description as such land is beyond the scope of a soil conservation program.

### 3. The Rural-Urban Fringe

Land use in this zone is largely a matter for the community planner, but as there is a direct connection between land use and the capabilities and characteristics of the soil, it is also of concern to the conservationist.

Horticulture is intensively practiced in the suburbs as an amateur endeavour and on a commercial basis in truck gardens and nurseries. The lighter soils and bottom lands are valued for these purposes. The demand for organic manure, "loam" and sod in the suburbs extracts these things from surrounding agricultural land, perhaps to the detriment of the latter. Stable manure is composted for use by mushroom growers, although the waste is passed on to truck gardeners and nurserymen. Sewage residue from the North Toronto plant is used as a fertilizer.

Land drainage and tile from septic tanks are two aspects of suburban land use which are poorly adjusted to the soil pattern. The minimum area required by law for installation of a septic tank is fixed for a township without reference to soil type, and there is considerable difference in the characteristics of the soils. Housing subdivisions generally follow the old rectangular survey which is at an angle of roughly 45 degrees with the natural grain of the country. Grading of roads, concrete foundations and earth fill on lots restricts surface drainage to the road pattern which is inadequate. Thus



is repeated, in the suburbs, the process which many years ago gave the name of "Muddy York" to the infant City of Toronto. Newer subdivisions made under the Planning Act usually do not perpetuate this error.

Small holdings on which urban wage earners may practice horticulture on a larger scale are common the fringe of any city. This type of life has been deliberately fostered in some areas by settlement under the Veterans Land Act. The area in which the V.L.A. small-holding administration has been able to operate near Toronto has been necessarily small. These are, however, well established communities which will maintain this way of life for some years to come. It is not urbanized to as great an extent as most housing in the suburban municipalities.

Use of land for the purposes of recreation is an important feature of the rural-urban fringe. The greatest development is in golf courses. The "estates", hobby farms and rural retreats of well-to-do city folk, though not purely recreational, show the demand for rural amenities. There are few parks for public use - one has recently been acquired by the city at York Mills. A more complete discussion of this subject is given in a special chapter in this report.

Real estate subdivisions present a unique form<sup>1</sup> of land use. This land is definitely idle until built upon. It grows a lot of weeds. Prior to converting from farmland to building land, farm operators allow the soil to deteriorate. As it lies idle nothing is done to improve the tilth or fertility of the land even though it is known that it will come under fairly intensive horticultural use. Subsequent sodding and gardening aggravate the situation by taking sod, topsoil and manure from nearby farmland. In this way, the encroachment

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1.

Rural Planning and Development: Thomas Adams, Commission of Conservation, Canada, 1917.





of the city on agricultural land without consideration to soil conservation creates a problem for the soil conservationist.

#### 4. Types of Agriculture

The production of fluid milk for the Toronto market and the breeding of good dairy stock are outstanding features of agriculture on the Don. Teston is the only village left which is truly a farm village. Maple, Thornhill and Richmond Hill, although they are still rural centres, have other features imposed upon them by their nearness to Toronto. The entire area is well served by roads which facilitate movement of milk and favour the non-agricultural use of the land as well. Two types of farm might be distinguished - those operated by "dirt" farmers and those by "hobby" farmers. However, it is often difficult to distinguish between the city man who takes a real interest in working his land and the prosperous dirt farmer who has acquired some of the city ways. Therefore, in this discussion it is assumed that everyone working the land is interested in soil conservation.

The country around Toronto is rather different from more remote agricultural districts with respect to soil conservation. The changeover in the management of a farm to embrace soil conservation practices often requires considerable capital expenditure or possibly sustaining a temporary loss in favour of greater returns at a later date. The favourable economic position of farmers in the Toronto region should make the introduction of new methods more feasible.

#### 5. Woodlands

A description of the extent, types and conditions of forested land is given in the Forestry section of this report. On the good farmland, woodlots are small and few. Some large stands are found in the river valleys and in the rough country near the headwaters. Except for park areas, existing or yet to be established, and a proposed Authority







PRESENT LAND USE

	Acres	Per Cent
Forest	4,316	7.6
Permanent Pasture	6,298	11.1
Hay	13,742	24.3
Grain	19,901	35.4
Intertilled Crops	2,698	4.8
Horticulture	3,413	6.1
Idle	3,087	5.5
Urban	2,534	4.5
Recreation	381	0.7
Total	56,370	100.0

forest, the management of woodlands will remain a feature of agricultural land use.

#### 6. Agricultural Land Use

The largest part of the watershed is still farmland and is likely to remain so. Soil and water conservation will always be primarily a farm problem. Therefore, in this survey a more detailed account is given of the agricultural land use.

Permanent pasture, hay, grain, row crops and horticulture were recorded on the Land Use map.

#### 7. Pasture

Land was classified as pasture when it was under sod, used for grazing and had not been seeded within five years, that is, it was obviously not in the regular crop rotation. Much of it was on slopes, bottom land or at the backs of farm properties. Meadowland, recently seeded, is usually cut for hay and was so classified at the time of the survey, which happened to be at haying time.

#### 8. Grain and Hay

These are the main crops for which land is cultivated and are included in the rotation. Cultivation for grain exposes land to erosion and, except for the stubble ploughed under, it extracts fertility from the soil. Grass and legume mixtures for hay, once established in sod, protect soil from erosion. Sod is a soil builder because it returns some fertility to the soil and it builds up the organic content. Hay and grain were, therefore, mapped separately.

#### 9. Row Crops

Crops grown in rows which allow cultivation while they are growing expose soil to erosion, use great amounts of moisture, take fertility from the land and return little or nothing to it. For these reasons they are usually



alternated with soil-building crops in the rotation and land may be prepared for them by adding stable manure. Crops included in this classification are corn, roots, peas and potatoes.

#### 10. Horticulture

Orchards, berry patches, gardens, truck gardens and nurseries were separated from farm cropland in mapping land use. In some cases they are parts of farms, some are operated separately from farms and some are in suburban small holdings and country homes. Because of proximity to the city, there are more of these than would be found in farm country elsewhere. They represent a fairly intensive use of land and draw heavily on the fertility of the soil. Organic fertilizer brought from farmland is used on gardens, nurseries and berries.

#### 11. Method of Mapping

The uses outlined above were observed directly in the field and plotted on aerial photographs as base maps. The data so mapped were traced in the draughting room on the same scale, reduced photostatically to a scale of two inches to the mile, then retraced on the final map. The coloured print, on a slightly smaller scale, is made from the final drawing. It will be noted that the accuracy is that which was obtained by working on a scale of five inches to the mile, even though the material is here presented on a smaller scale.





# LAND USE



Most of the watershed is still in farm land.



Grain, grasses and clovers are sown on a large part of the land on the farms.



On the edge of the city horticulture and other specialized uses take over.



## CHAPTER 4

### FARM PONDS

#### 1. The Value of Farm Ponds

Water supply on farms in Southern Ontario is obtained from wells, streams, springs, ponds and cisterns. With the mechanization of farm operations, the improvements in sanitation and with larger and better herds there is an increased demand for water. Supplies, on the other hand, are diminishing. Shallow wells often get their supply from "perched" water tables which are rapidly disappearing and are not likely to be re-established. Deep wells and some shallow wells draw water from the permanent level of underground water. This, in many regions, has lowered considerably. Streams, springs and ponds are drying up or are being filled in, partly through mismanagement but largely from the gradual change in the physical features of the land which goes along with the change in land use.

Against this increased demand and diminished supply can be balanced one outstanding natural feature, namely, that Southern Ontario receives, on the average, 30 inches or more of rainfall in a year. Although there is often a lack of rainfall in the summer months there is an ample supply in winter and spring. The need therefore is to store some of this spring run-off by proper land use in the earth itself, and thus increase the ground-water supply and maintain summer flow in streams and springs.

Farm ponds are directly connected with soil conservation. The study of soil erosion in Southern Ontario reveals that the most important single remedy for arresting this insidious process is the establishing of good sod cover. This in turn would provide a considerable increase of grazing land. One of the biggest obstacles to establishing improved pasture on eroding land is the lack of watering places for herds. Properly managed springs, streams and natural ponds





give the cheapest and most reliable supply of water. Small ponds offer the best form of management and provide reservoirs in time of drought.

The hazard of fire is becoming increasingly important with higher costs of buildings and equipment. Much is being done for fire protection by better organization and equipment, but fire-fighting apparatus requires ample supplies of water from which it can draw. Wells, in many instances, are inadequate for pumps. Natural supplies are not dependable and often remote from buildings. Therefore well-built ponds, favourably located, are much better sources for this purpose.

Many farmers know that good facilities for recreation are necessary to make farm life attractive to hired help and to their own children. Water, especially for swimming and skating, fishing and boating, can be the focus of recreational activities. There is increasing interest in ponds for this purpose.

Conservation aims at the creation of a balance between all living things, including wildlife population such as muskrats for commercial exploitation, game for hunting, fish for angling and certain species of birds and mammals for the control of pests. These purposes can be served by farm ponds or by well managed natural streams, and in some instances they may be suitable for a combination of uses.

Recent spells of drought have created interest in irrigation. Ponds can serve a useful purpose in this regard, either by preservation of pasture or protecting a valuable cash crop. For example, a half-acre pond of average depth of 4 feet contains 24 "acre inches" of water, enough to cover a 12 acre field with 2 inches of water. Throughout much of South Central Ontario there were in 1949 four weeks during June and July in which there was no rainfall at all in a period in which at least two inches could be expected as the average fall. Conveniently located, a pond of the above size could be used to take up this slack.



It is generally believed that any measures to hold water on the land would improve ground-water levels and summer flow in streams as well as mitigate flood conditions on rivers. It would take a good many ponds to effect a measurable improvement in this regard, but in view of the many other advantages in controlling surface flow of water it is not too much to hope that small ponds might become numerous enough to improve the whole situation materially.

## 2. Types of Farm Ponds

### (a) The Dug-Out Pond

The dug-out pond is built in a depressional area and receives its water supply from the ground water down to which it is dug. It is the cheapest pond for a farmer to build and is well adapted to pasture land providing the correct site can be found. However, unlike ponds which receive their water supply from springs or creeks, the dug-out pond tends to become stagnant in late summer.

Ground water levels (called the water table) change throughout the year, and late in the summer season may go below the bottom of the dug-out. There is little or nothing which may be done locally to raise the water table, and this type of pond is dependable only in spots known to stay wet all summer.

In certain types of hilly country with irregular slopes and hollows, there are natural waterholes called "kettle" ponds. In many instances these have filled in but can be cleaned out to re-establish ponds. These may sometimes be re-filled during the summer by rain running off the slopes around the pond, but in the climate of Southern Ontario this is not common enough to be a dependable source of water.

### (b) The Spring-Fed Pond

The water supply for this type of pond is derived from a spring, usually up the slope or "draw" from where the pond is situated, and because of its location -- that is, in the





lower part of a small storage basin -- it must be protected from damage and excessive flooding by a grassed waterway or emergency spillway by which the surface run-off is deflected around the pond.

Spring water is rainfall which has been stored in the ground and seeps gradually through the soil until it is discharged at a spring. The supply may be that which falls locally on land above the spring, especially if it is light soil; on the other hand some springs get their water from strata of sand and gravel which carry it great distances and the original source may not be known.

(c) The By-Pass Pond

A pond of this class is built close to, but not on, a permanent stream and gets its name from the fact that the water supply is by-passed through a pipe from the stream to the pond. This type has the advantage over some others in that there is no danger of the pond filling up with silt, because any excessive run-off goes down the permanent stream channel and not through the pond. Moreover, the water in the pond can be kept reasonably clean because the supply can be shut off when the stream becomes turbid. This is an inexpensive pond to build and should be attractive to a farmer who has a small permanent creek on his property.

Permanent streams get their water from a number of sources. During the spring thaw or rain, when the soil is saturated, the source is mostly surface run-off or overland flow. Springs are often the first source of streams, especially those that rise in gravelly hills or from limestone bluffs. During drought, stream flow may be maintained by the ground water, the level of which gradually lowers. The ground water may be recharged during autumn and spring. To get as much moisture as possible into the soil and into the ground water, soil conditions and vegetative cover must be favourable. The same practices which help to conserve soil help to conserve water, namely good organic content of soil, contour tillage on



long smooth slopes, good sod, and forest cover on steep land and coarse or shallow soils.

(d) The Run-Off Pond

Such a pond gets its name from the fact that the water supply is obtained by the natural percolation and surface run-off which accumulates at the lower elevations of a small drainage basin where the dam is built. The success of such ponds during the summer depends entirely on the amount of rainfall which occurs at that time. The vegetation of the slopes also is an important factor. If the slopes are mostly woodland or permanent pasture or a combination of both, the supply will be more even. If the slopes are cultivated fields there will be danger from too rapid run-off and silting unless these are cultivated on the contour or strip-cropped.

Many run-off ponds can be seen in the Northern United States, where they are very successful. In the State of Ohio, and particularly in the Muskingum region, this type of pond has been developed to advantage. However, in this connection it must be remembered that the annual rainfall in Ohio is usually 40 inches, whereas in Southern Ontario the average rainfall is close to 32 inches. This extra 8 inches of rainfall in Ohio usually occurs during the summer months. In the summer of 1949 certain parts of Southern Ontario received only 8 inches of rain from May until September, when an average of 14 inches can be expected. It must also be noted that in Ohio, summer storms with great intensity of rainfall and, consequently, surface run-off are common but they are rare in Ontario. Actually there are many summers in Ontario when there is no surface run-off. A run-off pond near Brantford is reported to have been recharged by summer rains only once in four years.

While examples of this type of pond can be found in Ontario, and while under favourable conditions such ponds retain water throughout the summer, it is most likely that in years of drought they will dry up. Consequently this report emphasizes the building of other types of ponds recommended herein, until more knowledge is obtained regarding the successful building of run-off ponds.





Ponds of the run-off type can only be considered on watersheds greater than 40 or 50 acres on which there is some permanent supply of water, but not on watersheds greater than 150 acres because maximum flows are too great to be handled by earth spillways.

The term run-off is used in measuring the flow in a stream. There are actually two main sources: "surface run-off" or overland flow of water; and "percolation run-off", that is, the water that travels through the soil to reach a stream. Although surface run-off may be very great in extreme instances in the summer, it is not a reliable source of water except during spring thaw or late spring rains.

(e) The Permanent Stream Pond

This type of pond is built in the channel of a small permanent stream by erecting a concrete or earth dam or a combination of both across the stream, thus forming a reservoir or pond behind the dam. Such structures require care in planning and if the stream is a large one and the pond is to be of considerable size it will be to the advantage of the owner to secure expert advice, as such structures may run into considerable sums of money. Moreover, under the Statutes of the Province of Ontario it is unlawful to dam a permanent stream without first securing permission from the Surveyor-General, which means that a plan must be filed in his office. The same principles of construction, however, apply to small dams, and where the stream is small the building of such a pond should be within the reach of the average farmer.

Adequate summer flow on permanent streams can hardly be ensured by one property holder, as it depends on the conditions of the whole watershed, which may be thousands of acres. In choosing a site for a dam on a permanent stream, consideration must be given to the conditions over the whole watershed of the stream above that point.

(f) The Temporary Pond

The temporary pond is formed by building a



temporary dam of wood, or wood and steel, across a permanent stream which is removed in the fall to allow the spring freshets to come down. Such dams are used on streams which have excessive run-off in the spring but a comparatively small flow in summer. They are a means of building a summer pond where the cost of a permanent dam large enough to withstand the buffeting of spring freshets would be too expensive.

### 3. Facts To Be Emphasized

While it is difficult to set down in a report of this kind explicit instructions for building all types and sizes of small dams, it would be well, before proceeding to the details of construction, to emphasize a few items which are common to all, especially earth structures.

#### (a) The Impervious Section or Core

The type of soil and how it is built into the dam is very important. Some part of the dam must be impervious, or nearly so, to the seepage of water. If the site provides a clay soil or soil with a high percentage of clay this is most satisfactory. If on the other hand the soil is sand or gravel a core of heavier soil must be built in the centre. In big expensive dams this core is sometimes a concrete wall, steel sheet piling or even plank. With the dams described in this report such expensive cores of course are not necessary, although if no clay is obtainable a core of double cedar planks, creosoted, could be used to advantage.

#### (b) The Slopes of the Dam

The tendency in building small dams is to make the slopes too steep, thus leaving the earthwork more subject to seepage and possible failure when the pond is full. A little extra work in soil moving will provide this necessary element of safety, and for all dams described in this report the slope recommended is 3 to 1 on the upstream side and 2 to 1 on the downstream side. Trees or shrubs should not be planted on the dam proper because their roots provide channels for seepage,





but a good turf should be established on the slopes as soon as possible. Burrowing animals of all kinds should be discouraged.

(c) The Spillway

The spillway is the channel which carries off the surplus water when the pond is full. More dams fail because of inadequate spillway capacity than from any other cause. On big dams this is usually built into the concrete structure, or may be a separate channel some distance from the dam. For farm ponds it is usually a grassed waterway of gentle slope. This slope should not exceed five per cent. To keep the slopes of the grassed waterways as low as possible a small timber check dam may be used. The dug-out requires no spillway, the spring-fed pond should be provided with a grassed waterway, and none is required for the by-pass pond or the temporary dam.

With run-off ponds, and dams built on a permanent stream, an adequate spillway is necessary and requires careful calculations to make sure that it has sufficient capacity. Unfortunately the science of hydraulics in relation to run-off deals only with the movement of water on large watersheds, and although the science is considered accurate for basins of several square miles the formulae developed are not adapted to basins of a few acres. Consequently if the property owner is considering the building of a run-off pond or one on a permanent stream he must arrive at an approximation of the greatest flow which passes through the proposed site of the dam in times of greatest flood. This can be done by observation in the spring if it is a creek or narrow valley, or in the case of run-off ponds the amount of water from the area in question may be checked where it concentrates at a culvert and be measured there. Even after this amount has been estimated an additional amount for safety should be added.

(d) Discharge Pipe or Trickle Tube

In any type of dam where the drainage pipe or



trickle tube which is used for supplying water for stock or for emptying the pond passes under the earth dam, special precautions must be taken. This should be one of the first items considered in construction, because it must be on solid ground, otherwise the pressure of earth as it is built into the dam will cause it to buckle and leak. Moreover, it will be necessary to construct what is termed an anti-seepage ring at intervals of 36 feet along the pipe to prevent seepage from finding its way through the dam. These rings are sometimes metal, but the simplest type is a concrete square 2 feet by 2 feet by 6 inches, into which the pipe is embedded.

(e) Management

If ponds of any type are located on the farm property where cattle are at large, they should be protected by fencing to prevent them from entering and muddying the pond. If possible the fence should be set far enough back to permit grass and shrubbery to grow down to the water's edge and trees back of these. Such protection will keep the pond clean and suitable for other uses if such is the desire. Because of the increasing moisture of the area surrounding the pond, trees which thrive best in moist soil should be used, such as cedar, spruce, tamarack, willow, soft maple and elm. Shrubby should include those which provide food suitable for birds in winter. Care should also be taken not to allow weeds or excessive aquatic growth to take root in the pond, otherwise it will soon fill up with vegetation.

(f) Stocking With Fish

Many ponds may be stocked with fish, and suitability for this will depend on their size and type. Certain species such as large-mouth bass along with bluegills (on which the bass feed) are commonly used. Trout are commonly introduced into spring-fed ponds and if the fish have access to a trout stream there may be a natural increase in population. However, if the owner is interested in stocking his pond with fish, advice on this should be obtained from a specialist in





that field or from someone who has had the experience.

#### 4. Constructing the Earth Dam

The site of the dam should be cleared of all trash and topsoil down to the undisturbed soil. The site is then ploughed to give a rough surface to which fill will bond well. A trench at least one foot deep and one foot wide, although this will vary with the size of the dam, is then cut along the middle of the dam site from one side to the other. This is the "core trench". The core of the dam should be made of the most clayey soil available, puddled and tamped into the core trench. The outlet pipe, if of drop inlet design, should rest on the undisturbed compact earth. If the pipe is concrete or cast iron a concrete collar is built in around it in the middle of the dam for stability and to check seepage along the pipe. This is the "anti-seepage" ring. It is considered that with corrugated pipe this is not necessary but even on this type a plate may be fixed for the same purpose.

The place from which fill for the dam is drawn is called the "borrow pit". Where possible the borrow pit should be the site of the pond, thus giving it greater capacity for water. If the soil on the pond site is not impervious enough then the borrow pit should be selected where soil is suitable but not too far away.

All topsoil should be removed from the borrow pit and set to one side. The heaviest, most clayey soil should be used for the core. Loamier fill may be used to build up the banks. The dam should be built up in approximately six-inch layers so that the movement of machinery back and forth packs it down evenly. Fill material should be free of stone, gravel, boulders and trash, that is, as nearly homogeneous as possible. Silty material is suitable if there is a good proportion of clay with it but not silt alone. The heavy clay should only be in the core where it will remain moist and stable.

The topsoil from the borrow pit is put on the



dam last, especially on the crown and downstream side where it is necessary to support a good growth of sod. Where a permanent water level touches the dam, rip rap may be built in to resist erosion by wave action. The dam should have slopes of 2 to 1 on the downstream side and 3 to 1 on the upstream side.

The crest of the dam should be at least six feet wide. If it is to be used as a roadway it must be twelve feet or more in width, but as this adds considerably to the fill needed such use should be avoided in most cases. The top of the dam should be three feet or more above the water level plus allowance for settling of fill.

Where an emergency spillway is provided to carry surplus water in maximum flows, it should be located so that its entrance has a minimum risk of being jammed by ice. The spillway should conform as nearly as possible to the natural lay of the land and should be "cut out" rather than "built up" so that its floor is compact and stable.

The hazard of erosion is acute on earth spillways with no more protection than that afforded by sod. It is necessary, then, to keep to as low a gradient as possible. To do this one or more terraces may be built in with an overdrop of timber, concrete or concrete block and an apron of concrete or boulders to break the fall of water. An alternative is to pave the floor of the spillway with concrete.

The most common arrangement for carrying overflow is the drop inlet type of discharge pipe. This consists of a discharge pipe placed horizontally, or nearly so, under the dam to which a "riser" is joined at the upstream end. The height of the riser determines the permanent level. This should be six inches or more below the level of the emergency spillway.

The inlet to the riser should be protected by a heavy screen, preferably in the form of a box, to keep trash and ice out of the pipe. If the riser is built into the dam there should be a baffle board against the dam to protect it





from erosion by swirling waters entering the pipe. The outlet should splash onto concrete or stone so that the stream bed is not cut away.

The riser can be attached with a T-joint so that water may be allowed out of the dam by opening a gate or plug at the upstream end of the discharge pipe. This has a number of advantages. If the portion of the stream below the pond has trout then cool water from the bottom of the pond may be delivered downstream. Opening the pipe allows the pond to be drained for flushing out silt, to allow it to be cleaned or to empty it to provide storage for anticipated heavy flow.

If the pond is to be used for watering cattle a pipe may be led from the pond to a watering-trough and the water delivered by gravity. The inlet to the delivery pipe can be put below the permanent level and flow through it controlled by a float valve on the watering-trough.

#### 5. Detailed Descriptions of Farm Ponds

This section includes a detailed description of the six types of ponds already mentioned in this publication, namely the dug-out, the spring-fed pond, the by-pass pond, the run-off pond, the permanent stream pond and the temporary pond. Each is described with four illustrations, namely a photograph of the type of pond described, either completed or in process of building; a perspective drawing showing the topography of the area in which the pond is located, and a suggested treatment of what such a pond might look like when complete; a plan indicating the different parts of the pond and a suggested treatment for landscaping; and a cross-section which should be of assistance in the actual constructing of the pond. Each set of four drawings is supported with full captions which indicate the parts of the illustrations which require emphasis.





# THE DUG-OUT POND



Figure 1—A dug-out, pictured at left, is commonly used for watering beef cattle. With no protection such a dug-out is likely to fill with silt and vegetation in a very few years.

# THE DUG-OUT POND



Figure 2—The above sketch indicates how a dug-out pond, shown in Figure 1, should be developed for efficient use. The spoil bank is spread out, the pond is fenced, trees provide shade to minimize evaporation and the water is led by means of a pipe to a trough outside the fence.

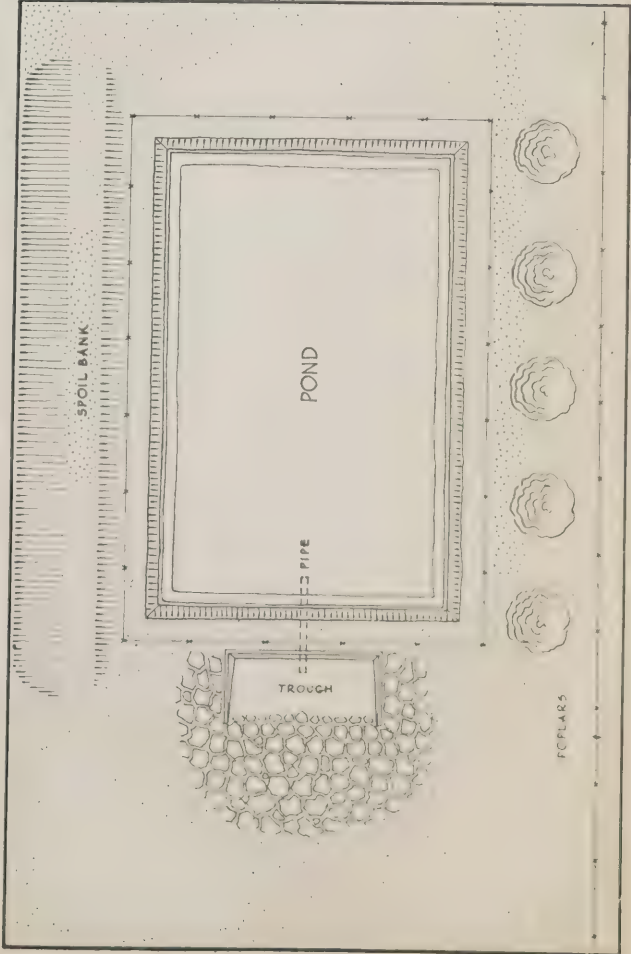


Figure 3—A plan of the sketch shown in Figure 2.

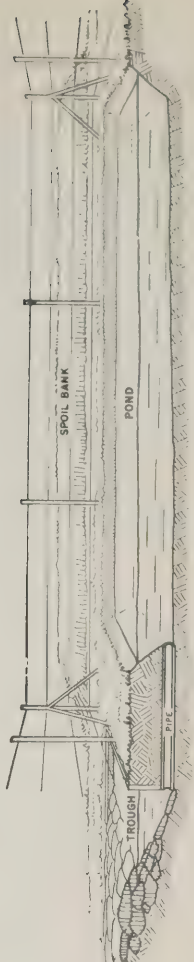


Figure 4—A section lengthwise through the dug-out shown in Figure 2, indicating how the water is led from the reservoir to a sloping trough paved with large flat stones or coarse gravel.





# THE SPRING-FED POND



Figure 1—The photograph at left is of a spring-fed pond held by a dike with a pipe leading to a watering-trough.



Figure 2—A suggested treatment for improving a pond as shown in Figure 1, with grassed diversion ditch to carry off surplus water, trees for shade and wildlife, and careful management of overflow, first into a watering-trough and from this to the grassed channel.

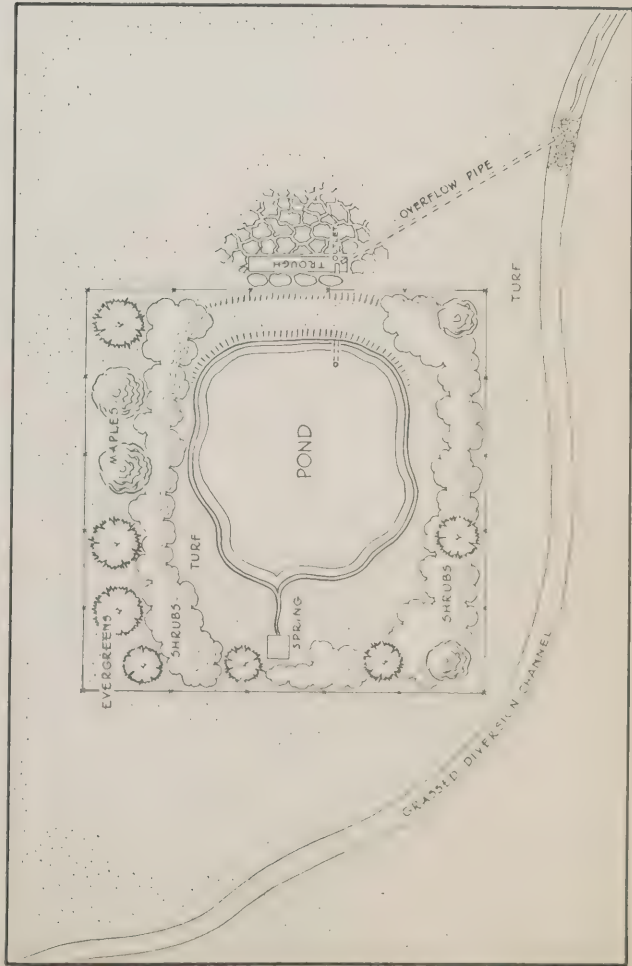


Figure 3—A plan of the sketch shown in Figure 2, showing the location of the different important features of the pond.

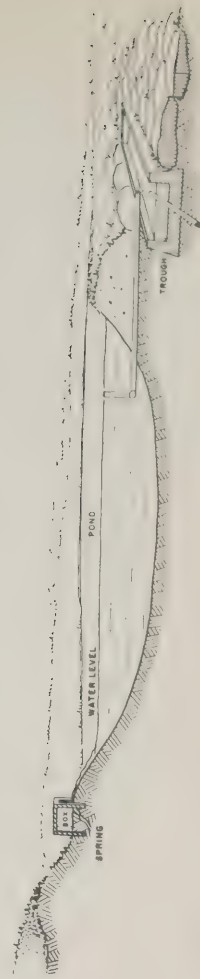


Figure 4—A section of the sketch shown in Figure 2 from the spring through the watering-trough, indicating the position of the overflow pipe and other features.





# THE BY-PASS POND



Figure 1—The photograph at left is of a well-managed by-pass pond in Waterloo County. The concrete spillway section and stop logs were put in before the pond was adapted to the by-pass type, and are actually unnecessary. The inlet to the pond is beside the tree on the far side.



Figure 2—A sketch of the same pond shown in Figure 1, with the concrete spillway section omitted and the stream from which the pond gets its water shown more clearly.

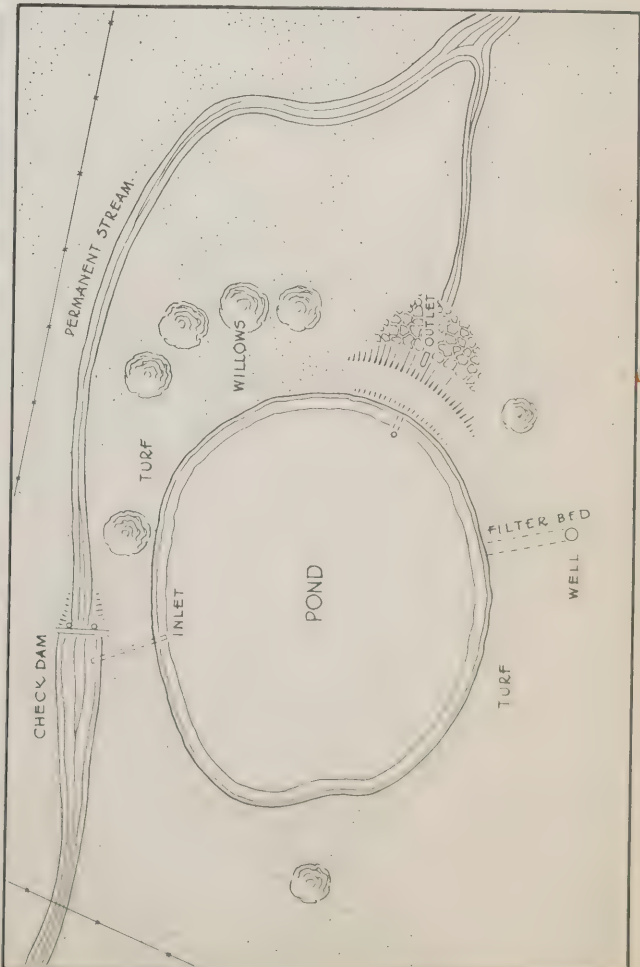


Figure 3—A plan of the sketch shown in Figure 2, indicating the small removable check dam which diverts water from the stream into the pond, the overflow from the pond to the stream, and also the position of a gravel filter-bed which permits clean water to seep into a shallow well from which the domestic water supply is drawn.

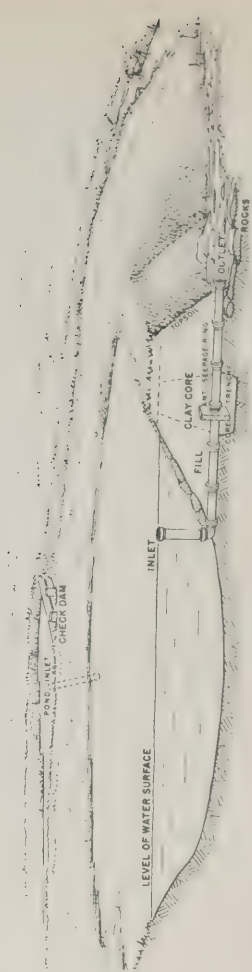


Figure 4—A section of the sketch shown in Figure 2 with details of earth dam construction and the inlet to the discharge pipe which controls the level of the pond. It should be further noted that the earth dam has a clay core and that the anti-seepage ring is a concrete block which prevents water seeping along the outside surface of the pipe.





# THE RUN-OFF POND



Figure 1—In this photograph a run-off pond is in process of construction in a farmyard between the house and the farm buildings. It is intended chiefly for fire protection. The pond is supplied by an intermittent watercourse, supplemented by two small springs from a run-off area of approximately 40 acres.

# THE RUN-OFF POND



Figure 2—A sketch of suggested treatment of this pond, showing the grassed emergency spillway which will carry off heavier than average flows, with a small timber check dam to reduce the gradient of this spillway to a minimum.

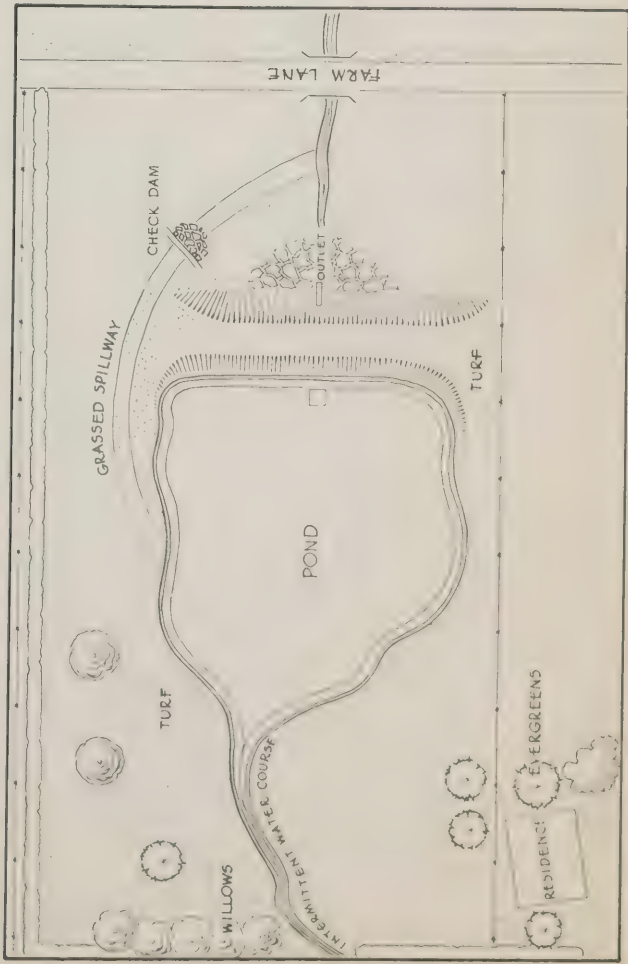


Figure 3—A plan of the sketch shown in Figure 2, showing the relative positions of the different features included.

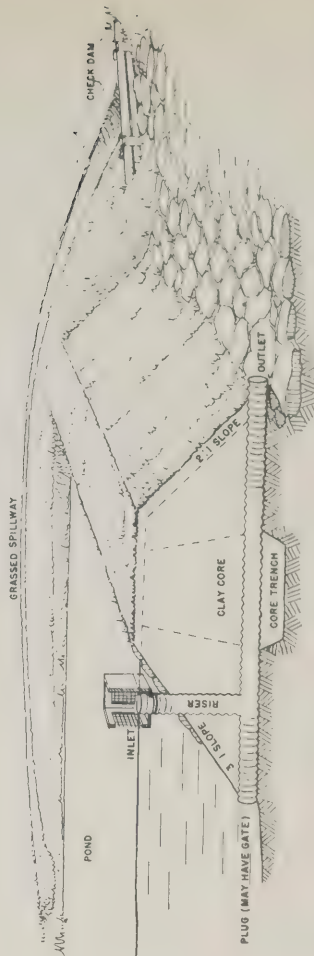


Figure 4—A section lengthwise through the pond and dam sketched in Figure 2. The inlet to the discharge pipe is protected by a box with heavy screen to stop trash and ice. The details of construction of the dam should be noted, such as the slopes, the clay core and core trench, with topsoil and sod on crown and face.





# THE PERMANENT STREAM POND



Figure 1—This attractive pond is formed by a small concrete dam (not shown in the picture) crossing a permanent stream which is fed by springs in the distant hills.

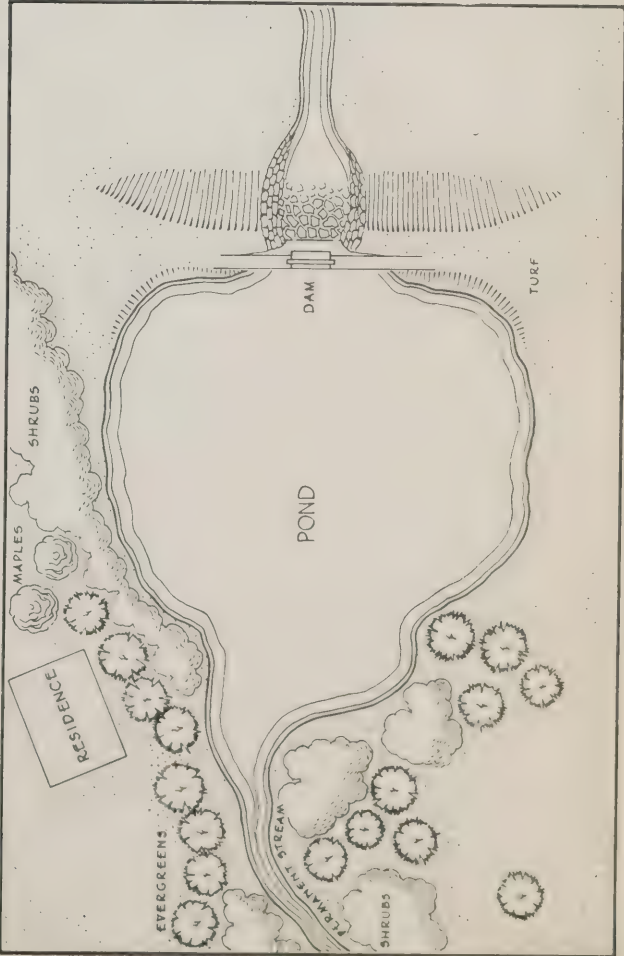


Figure 3—A plan of the pond shown in Figures 1 and 2, indicating the position of the dam in relation to the other features.

Figure 2—A sketch of the pond shown in Figure 1, indicating the position of the concrete dam. The water level is maintained by stop logs a few inches below the top of the dam, and a simple valve in the lowest log allows water to be drawn from the bottom of the pond.

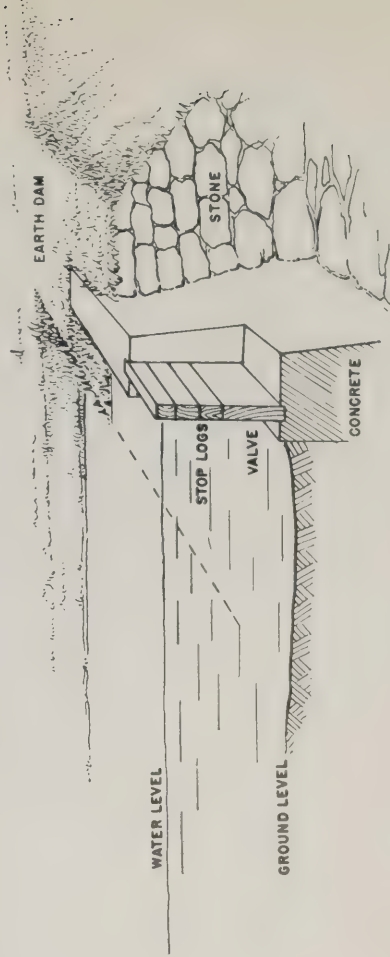


Figure 4—A section through the concrete structure. It should be noted that the floor of this section of the dam is level with the bottom of the pond. The concrete is set well back into the earth dam and must go deep enough into the stream bed that it will have a firm base and not allow water to leak under it and will not heave with the frost. The stop logs may be removed in anticipation of very heavy flows. If the spillway section with logs removed is as large as the stream channel which feeds the pond, no water should go over the earth structure of the dam.





# THE TEMPORARY POND



Figure 1—The photograph at left shows a removable timber dam laid on a concrete sill to provide a swimming-pool for a boys' camp.

# THE TEMPORARY POND



Figure 2—A sketch of this type of pond with the timber structure simplified. In this case the 6 x 6 posts are set vertically in the concrete and each section between the posts, which are approximately 4 feet long, can be removed separately. The whole structure rests on a heavy concrete footing which is embedded in the stream bed. Such a dam will provide 5 or 6 feet of water for a pond which can be used for stock-watering, recreation and fire protection.

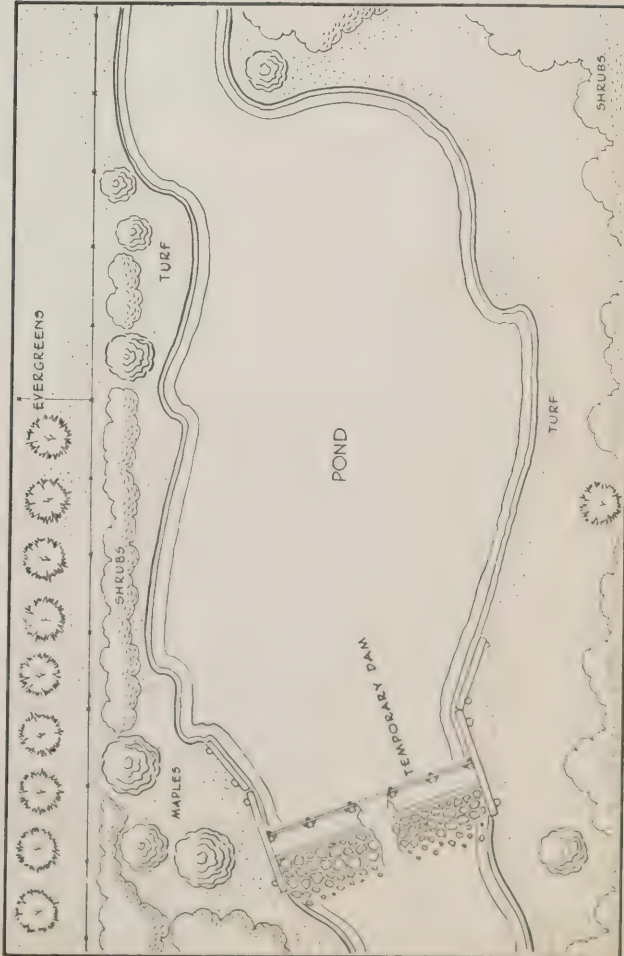


Figure 3—A plan of the sketch shown in Figure 2, indicating the position of the timbered dam, the concrete footing, the apron of large flat stones at the base of the footing and other features.

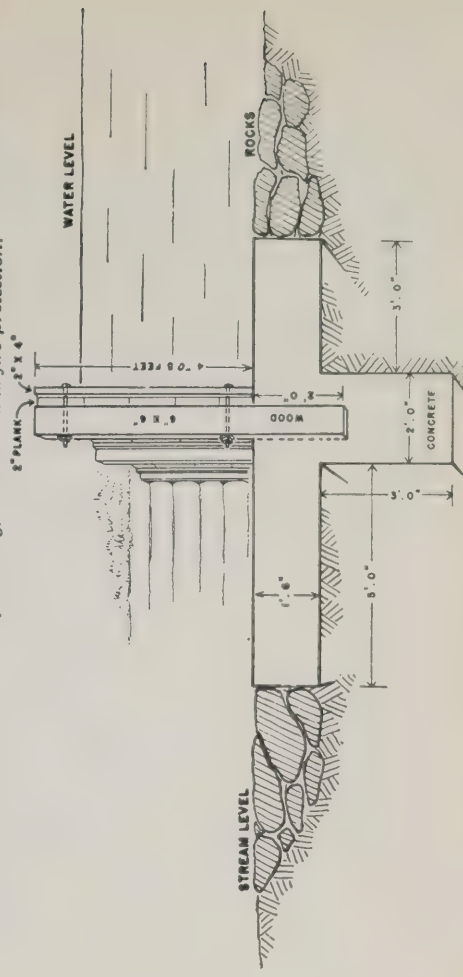


Figure 4—A section of the dam shown in Figure 2, indicating the position and size of the concrete footing and protecting flat rock. When the dam is removed in the autumn it is suggested that old sackings be placed in the holes which take the uprights, so that these will not be filled with silt during the spring run-off.





## CHAPTER 5

### PONDS ON THE DON

#### 1. Purpose of the Survey

Ponds and small dams are important features of a conservation program. A survey was therefore made of all existing ponds on the Don Watershed to find out as much as possible about the location, construction and management of ponds.

#### 2. Methods of Survey

The locations of ponds were determined by stereoscopic examination of aerial photographs, by questioning local residents and by following main streams on foot. Each pond was visited and notes made of the construction and size, particularly of the spillway and its capacity, conditions during flood and function of the pond. Also investigated were: source of water, substratum material on the pond site, slope of the watershed area, area and depth of pond, plants and animals in and around the pond and causes of failure where such was the case.

The watershed area feeding the pond was determined from aerial photographs and, when necessary, checked on foot. The ponds visited included ones larger than farm ponds because it was felt much could be learned from these that might be applied to smaller structures.

#### 3. Distribution and Function of Ponds

The number of ponds surveyed was 41. Of this number, 35 are on the Don River and its tributaries, 6 are fed by springs or are merely excavations filled by ground water. The heaviest concentration of ponds is in the first and second concessions of Vaughan Township.

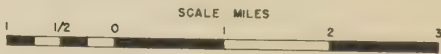
Half of the ponds serve a recreation purpose, including swimming, boating, property beautification and irrigation of lawns and golf courses. Thirteen supply water for





EXISTING PONDS AND DAMS

- DUG-OUT
- DAM ON PERMANENT STREAM
- SPRING-FED
- BY-PASS





cattle or human consumption. Other uses include waterfowl, fish and fire protection.

#### 4. Types of Ponds

Four types of artificial ponds were found:

- (a) Dugout ponds
- (b) By-pass ponds
- (c) Spring-fed ponds
- (d) Ponds formed by dams  
in permanent streams

Ponds fed entirely by surface run-off, such as are described in American literature, were not found. Further investigation is necessary before the feasibility of this type can be proven in this region. Natural ponds were found to be neglected or poorly managed and in most instances were being obliterated by trash dumped into them.

#### 5. Dugout Ponds

These are formed by an excavation in a low or wet spot or by improvement of an existing natural pond. This type of pond tends to degenerate by filling with sediment and vegetation, aggravated by trampling by cattle.

#### 6. By-Pass Ponds

There are two examples of this type on the watershed. They are noteworthy because they provide a good reservoir at a low cost of construction.

#### 7. Spring-Fed Ponds

Nine ponds receive their water supply from springs. Some are built near the headwaters of streams and some are fed by springs on the sides of valleys of the main streams. The water is stored in an excavation behind a low earth dam with depths from five to twelve feet. For watering cattle the overflow is led through a pipe to a trough. The cattle are then excluded from the pond and dam.

Usually spring-fed ponds are not frozen solid





in winter and the water is relatively warm. In summer the water is cool. This is a most favourable arrangement for keeping trout. That the water is very clear and contains a fair proportion of lime from the soil also favours trout. Four of the spring-fed ponds are used for this purpose.

Only three of this type are used for watering stock even though this is a simple and cheap form of managing springs. On the whole springs are very poorly managed and are gradually drying up, are being sealed by silt or are degenerating into merely wet ground by being trampled.

The largest drainage area found on any of the spring-fed ponds was 540 acres and diverting run-off from this area is a formidable job. On drainage areas of only a few acres a simple diversion terrace should be adequate.

#### 8. Ponds Behind Dams on Permanent Streams

This type consists of a pond covering a part of the stream valley held behind a dam built across a permanent stream. The river had been widened and deepened, in some cases, to make a greater capacity. There are 26 ponds of this type, used mainly for beautification, recreation or for irrigating lawns and golf courses. Only a few were used for agricultural purposes and these were on a scale too large for the average farmer. These ponds were studied for what might be learned about dam construction for use in smaller structures.

The high cost of construction and possible failures due to washouts of ill-constructed dams make permanent dams on permanent streams inadvisable to the farmer. These costly structures, undertaken by wealthy landholders or possibly by municipalities or groups of owners, are useful. They may be of value in checking flow to recharge ground-water levels, in augmenting summer flow and in controlling flood waters. In the last named use it is advisable that they be managed in accordance with an over-all plan for stream control on the watershed.

Failures in earth structures were due to one or



more of a number of faults. These include: washouts due to insufficient spillway capacity; leaks caused by sod, topsoil, gravel and stones in the dam or by burrowing animals and decaying roots; deficient compactness of the dam; slopes too steep with consequent wave erosion; trampling and pollution by cattle; and filling of the pond by sediment. Other failures, including those of concrete structures, are related to ice conditions or to undercutting by water spilling over on to the soft river bottom instead of a hard apron.

The examples of removable dams on the Don are rather elaborate structures on the lower reaches of the main streams. They consist of concrete wings, sill and columns. Together these form a concrete spillway which preserves the cross-section of the stream. Between the wings and the columns stop logs are inserted to the desired height and a substantial body of water is built up. The logs are removed in the autumn and the heavy flow of early spring is passed unimpeded. The logs may be removed during the summer. If this is done in anticipation of a storm producing a large volume of run-off then these dams provide storage and equalization of flow of the stream.

#### 9. Locations of Ponds

All of the watershed except the sandy soils of the moraine and the deltaic sands seem to be able to hold water in ponds. The surface relief favours pond building throughout, even on the Peel plain which is fairly deeply dissected by streams and watercourses.

The most favourable zone for pond building is in the rolling country with loam, clay loam and clay soils around the moraine on the headwaters of the streams. Small dams for farm ponds should not be built on streams with watersheds in excess of 500 acres, except of the removable type, or unless the proprietor can afford costly structures. It is recognized that there are property owners on the watershed who





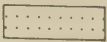
might afford expensive dams and nothing in this report should be taken as discouragement of this practice. The difference between a "farm pond" and more expensive structures for other purposes should be kept in mind. The accompanying map shows the areas in which ponds are recommended to be built.

10. Ponds for Wildlife

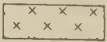
Except for the few fish ponds noted above there is little evidence of artificial or natural ones harbouring any significant wildlife. Any farm pond may be managed, using trees and shrubs, in a way that affords favourable environment for desirable birdlife. The use of ponds to attract game or to give homes and feeding grounds for muskrat is not entirely compatible with farm uses. The establishment of ponds for fish, muskrat or other desirable wildlife is a matter that might be further investigated.



RECOMMENDED POND REGIONS



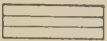
PERMEABLE SOILS, LESS SUITABLE FOR PONDS



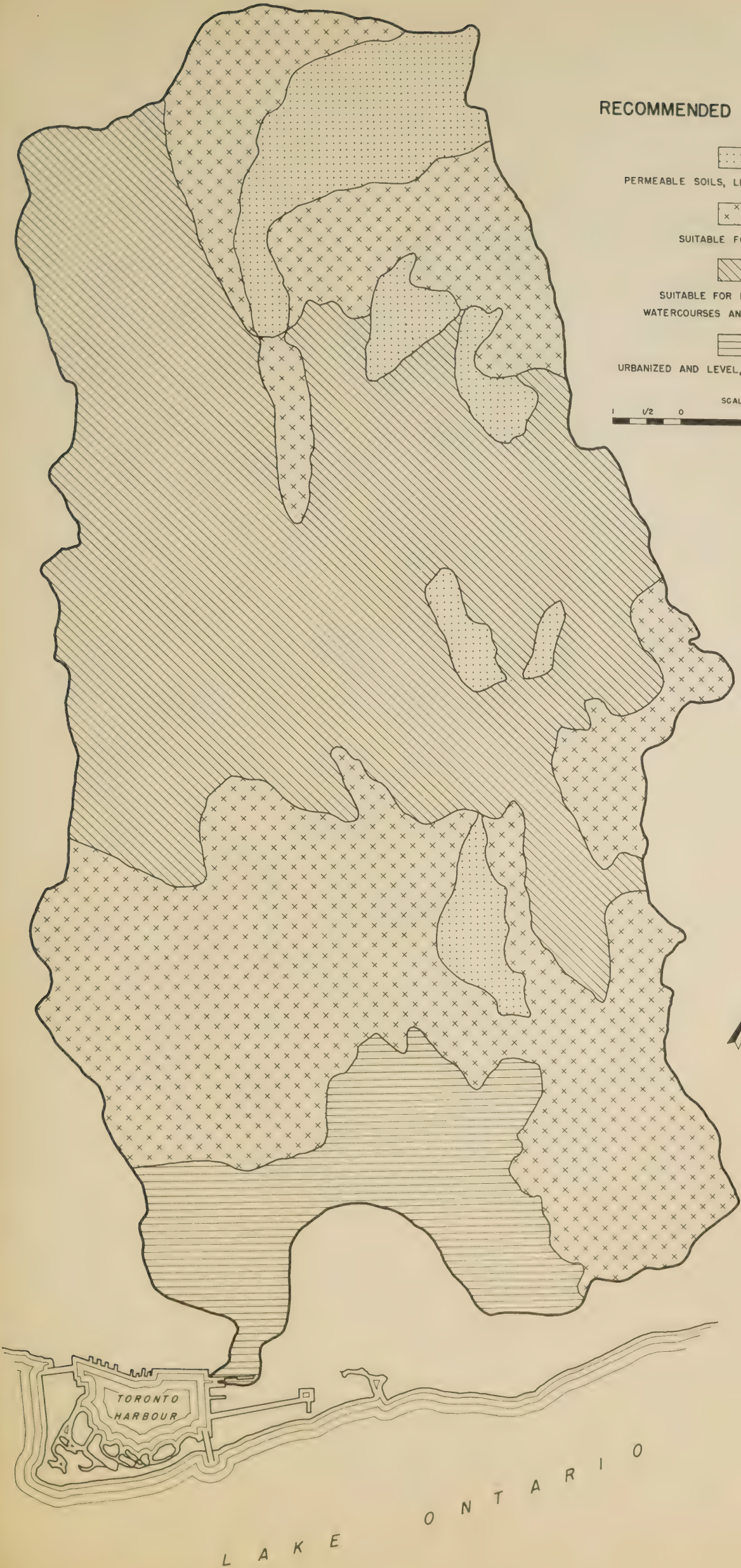
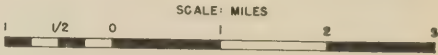
SUITABLE FOR ALL TYPES



SUITABLE FOR PONDS ON DEFINITE  
WATERCOURSES AND SPRINGS IN VALLEYS



URBANIZED AND LEVEL, UNSUITABLE FOR PONDS







## CHAPTER 6

### LAND USE CAPABILITY

#### 1. Classification

The land use capability classification is a convenient yardstick for measuring the capability of land. Even when all the features of the land are divided into a few classes, such as twelve slope classes, five degrees of erosion and a limited number of soil types, possibly a dozen in one region, a great variety of land types can be identified, as many as sixty or seventy in a few thousand acres. All these divisions must be made when an area as small as one farm is to be planned, but it is much too cumbersome a system to account for all the land of a watershed.

The eight capability classes are described in the following paragraphs. Following this is a description of the way in which the various combinations of soil type, slope and erosion were assigned to the eight classes on this watershed.

#### 2. Class I Land

This is level, or very nearly level land, well drained naturally, which is neither too heavy to cultivate nor so light as to deteriorate rapidly. It includes all the fertile loamy soils, well drained and not erodible.

#### 3. Class II Land

This is land of slightly lower capability which either yields more poorly or requires special management to bring it into full production of the widest range of crops. Soil may be downgraded to this class for one of a number of reasons, lack of fertility, tilth and humus content, susceptibility to erosion or inadequate drainage. According to its natural limitation, it must be managed to build up the soil, resist erosion or be artificially drained. The simple practices required on this land include green manure, restricted rotations



and application of fertilizer to build up the soil, simple contour tillage to check erosion or field ditches to improve drainage.

#### 4. Class III Land

This is the land of lowest capability which can be regularly cultivated in a four or five year rotation. It may, however, be too poorly drained to give good yields of all crops or it may be so eroded or susceptible to erosion that it cannot support crops without some check against soil wash and gullying.

Intensive practices of drainage, tile under-drainage and permanent ditches are required on poorly drained land of this capability class. On Class III land subject to erosion intensive practices include contour tillage and seeding, contour strips, diversion terraces and grassed waterways.

Some Class III land is susceptible to erosion but is not suitable for intensive contour practices. Emphasis on soil-building crops and limitation on cultivated and inter-tilled crops are required.

#### 5. Class IV Land

When cultivated, this land may not be able to carry a full range of crops or give a high yield. It may be unsuited to some tillage operations, especially those requiring heavy, powered equipment. Also included in this class is land which is eroded or seriously susceptible to erosion, on which contour tillage is not sufficient or cannot even be practised due to irregularity of slope. Class IV land, therefore, requires a greater proportion of soil-building crops (grasses and legumes) than the ordinary rotation, and the soil cannot be exposed by cultivation as much. Special devices to check erosion are required, diversion terraces and grassed water-courses to carry away surface run-off harmlessly are needed.

#### 6. Class V Land

Into this class are put those soils which are





wet and cannot be artificially drained or which are subject to annual floods and therefore are not suitable for cultivation. This land can support permanent vegetation, either sod or trees. Ordinary good management of pasture or woodland is all that is required.

7. Class VI Land

This class includes land which is moderately and seriously eroded or which is very susceptible to erosion because of steep or long slopes. Because this land is more difficult to work and, when cultivated, is so seriously exposed to erosion, it should be kept under permanent vegetation. Even with sod or trees to protect it from erosion this land should be managed carefully. If grazed, salt licks and watering places should be arranged so as to prevent cattle tracks starting gullies. If reforested, trees should be planted on contour rows when possible and in cutting woodlots vehicles should be driven along the contour to avoid starting gullies.

To get the best possible returns from pasture, the land can be cultivated, fertilized and seeded, but it should not be exposed to erosion during autumn rains or spring thaws.

8. Class VII Land

This is rough, erodible land requiring permanent vegetation. Severe restrictions should be imposed on its use. If grazed, cattle should be excluded part of the time to avoid overgrazing, drought and formation of gullies in tracks. Plantations of trees should be on the contour, up and downhill tracks avoided and woodlots carefully managed.

9. Class VIII Land

Steep, rough, bouldery or swampy lands which cannot be cultivated, grazed or lumbered are included in this class. It is suitable for wildlife and should be managed for the benefit of wild species of birds or mammals, for game or possibly for commercial use.



TABLE II

LAND USE CAPABILITY CLASSIFICATION

	Acres	Per Cent
Class I	22,235	39.5
Class II	18,163	32.2
Class III	5,339	9.5
Class IV	1,661	3.0
Class V	5,454	9.7
Class VI	2,843	5.0
Class VII	649	1.1
Class VIII	26	-
Total	56,370	100.0





## LAND USE CAPABILITY

A first-class farm on Class I land.



A gentle slope induces erosion; the patchy colour of the soil indicates areas of erosion. This is Class II land which now has some measure of protection.



Class IV land shows clear evidence of erosion. Contour tillage is not practicable but the land needs long rotations, winter cover and sod to protect it.







TABLE III

LAND TYPES ON SAMPLE STRIP

Soil Type	Mapping Symbol	Dominant Slope Class	Estimated Degree of Erosion	Acres	Per Cent
Excessively drained Brighton sand	B1	R	3	468	5.2
Well drained Brighton sandy loam	B2	P	1	60	0.7
Pontypool sand	Po2 Po2	N R	1 3	204 278	2.3 3.1
Milliken sandy loam	Ms2	M	1	168	1.8
Milliken loam	M2 M2 M2 M2 M2	A B M N P	0 1 1 1 3	1,296 803 1,435 387 156	14.3 8.8 15.8 4.3 1.7
Imperfectly drained associate	M4 M4	A M	0 0	266 78	2.9 0.9
Peel clay	P2 P2 P2 P2 P2	A B C M N	0 1 1 1 1	1,074 242 102 378 82	11.8 2.7 1.1 4.2 0.9
Imperfectly drained associate	P4	A	0	462	5.1
Well drained Berrien sandy loam	Be2	A	0	108	1.2
Berrien sandy loam	Be3	A	0	196	2.2
Imperfectly drained associate	Be4	A	0	86	0.9
Fox sandy loam	F2 F2	A R	0 3	114 104	1.3 1.1
Imperfectly drained associate	F4	A	0	90	1.0
Bottom land				424	4.7
Total				9,061	100.0

10. Classification of Land on a Sample Strip

Two strips of land were chosen to be studied in detail to derive a land use capability classification for the watershed. One strip included five township blocks in the 2nd Concession of Vaughan Township, north from No. 7 Highway. The other strip consisted of five township blocks in a row running east and west on the north side of the town line from the 2nd Concession of Markham. This gave approximately 10,000 acres of land which included the widest possible variety of land types and land use in the watershed.

These strips were mapped in detail with respect to soil type, with slope and erosion estimated in the classes outlined in the first chapter. The land use of each field, in the nine use classes, was also indicated.

Table III shows the types of land that were identified, the acreage of each and the proportion of the total.

Table IV gives the proportion of each land use in each type of land. From this can be calculated the ratio of intensity of use of any kind of land to the average for the area. For example, one of the most important soils is Milliken loam, and a large amount of it is found on level land with no erosion. Forty per cent of this soil is under cultivation for grain, but on the whole study area only 30.6 per cent is under cultivation for grain; that is, this soil is cultivated for grain to the extent of 1.3 times the average land under grain in the area. Further, 72 per cent of this soil is cultivated for hay, grain and row crops, which is far greater than the 57 per cent under cultivation in the whole area. This decided preference for this soil for cultivated crops shows that it is generally recognized by all operators as one of the best soils in the region. It is interesting to see that this same soil with steep irregular slopes and slight to moderate erosion is cultivated to a much smaller extent, and a far greater proportion of it is under pasture or woodland. This method of





TABLE IV

Soil Type and Condition	Per Cent Land Use of Each Land Type									Acres
	X	F	P	H	G	R	O	Z	U	
B1R3	17.5	27.1	47.0	4.3	-	2.8	1.3	-	-	468
B2P1	-	53.3	6.7	21.6	8.3	1.7	8.3	-	-	60
Po2N1	6.4	2.0	29.4	25.0	21.0	12.7	3.4	-	-	204
Po2R3	3.6	20.5	49.1	15.1	4.0	0.4	7.2	-	-	278
M32M1	8.3	14.3	36.9	14.9	14.3	8.9	2.4	-	-	168
M2Ao	6.3	6.1	3.6	29.5	40.5	2.6	5.7	-	5.6	1,296
M2B1	5.1	12.4	9.3	18.3	44.0	4.2	6.6	-	-	803
M2M1	2.6	5.3	9.6	26.9	34.5	5.5	5.3	-	10.4	1,435
M2N1	2.8	23.2	14.2	22.4	30.4	4.9	1.8	-	-	387
M2P3	9.0	14.7	48.0	7.7	15.4	1.9	3.2	-	-	156
M4Ao	20.3	1.1	7.9	9.4	56.3	4.1	0.7	-	-	266
M4Mo	-	10.3	-	51.3	33.3	5.1	-	-	-	73
P2Ao	3.9	0.4	1.3	30.6	32.9	10.7	4.0	1.2	15.0	1,074
P2B1	-	-	2.5	22.3	60.0	-	3.7	-	11.6	242
P2C1	-	-	28.3	36.3	13.7	-	16.7	-	5.0	102
P2M1	-	-	5.2	30.5	52.4	-	11.4	-	0.5	378
P2N1	4.7	-	-	30.5	59.7	-	6.1	-	-	82
P4Ao	6.5	8.9	1.5	23.4	45.0	5.8	6.3	-	2.6	462
Be2Ao	-	-	13.0	36.1	11.1	8.3	31.5	-	-	108
Be3Ao	4.1	4.6	12.2	17.3	27.5	5.6	2.1	-	7.6	196
Be4Ao	-	12.8	22.1	-	-	31.4	20.9	-	12.8	86
F2Ao	10.5	13.2	54.4	10.5	-	-	11.4	-	-	114
F2R3	28.9	42.1	26.9	1.9	-	-	-	-	-	104
F4Ao	4.5	4.5	-	-	-	-	91.0	-	-	90
BL	55.6	26.7	7.3	3.5	1.6	-	0.2	0.7	4.2	424
	8.0	9.4	12.5	22.0	30.6	4.7	6.5	0.1	6.2	9,061

Land Use		Soils	
X	Idle	B	Brighton sand
F	Woodland	Po	Pontypool sand
P	Pasture	Ms	Milliken sandy loam
H	Hay	M	Milliken loam
G	Grain	P	Peel clay
R	Row crops	Be	Berrien
O	Horticulture		sandy loam
Z	Recreation	F	Fox sand
U	Urban		
		Internal Soil Drainage	
		1	Excessively drained
		2	Well drained
		3	Slightly imperfectly drained
		4	Imperfectly drained





calculating the capability rating of the soil is based on the assumption that over the years farmers have adjusted their land use to land capability.

These figures can be read in another way. This same soil, Milliken loam, which is demonstrated to be one of the best soils, still carries some pasture and woodland. Now there are soils, such as Pontypool sand, with irregular slopes and considerable erosion which are cultivated, thereby exposing them to further erosion. The best land often is woodland or pasture to just about the same extent that the poorer land is cultivated. Eventually the burden of production might be borne by the land of highest capability and the land of lowest capability protected under a cover of grass and trees.

Although the sample area is adequate in size, - nearly 10,000 acres - to give a good picture of conditions, some of the land types have only small areas of less than 100 acres. The land use on these small areas may be quite unrelated to the capability of the soil and determined by some other factor, such as proximity to a barn, to a road, or merely because one farm holding contains a large proportion of one soil type and the operator is necessarily required to use the land for the wrong purpose. When this table is examined with respect to the soil types and conditions that cover significantly large areas, that is over 200 acres, it will be found that the proportion of the more intensive land uses show those soils which have been preferred for intensive use. Conversely, where a soil is seen to be largely under pasture and forest, it is easily recognized as a soil of low capability.

The facts revealed by these measurements of land use and land type show that Milliken loam and Peel clay are by far the best soils in the region. The imperfectly drained associates of these soils, especially where there is any slope to remove water on the surface, are also highly favoured. The lower capability of these soils on sloping and eroded land is demonstrated. Generally the light textured



soils, such as Pontypool, Fox and Milliken sandy loam, are used much less intensively and are recognized as soils of much lower capability. One soil, Berrien sandy loam, is a good soil for special purposes and due to proximity to the city is used for houses, estates and horticulture.

It will be seen that some of these soils have considerable areas now built up and it may be significant that those soils which have the highest capability for agricultural production are those which have been most intensively urbanized.

The present land use, as shown in this analysis, indicates that sloping and eroded land is recognized as having a lower capability. Studies have been made of the erosion on sloping land comparing land in fallow, land under sod, land with crops sown up and down hill and with crops cultivated and sown on the contour. At the Dominion Experimental Farm in Ottawa, and in test and demonstration plots near New Hamburg, erosion and run-off have been studied. Previously studies of erosion were made in the United States and it was found that on certain soils the run-off on row crops was more than three times as great as on grass or pasture, and the erosion measured in tons of soil per acre was very many times greater on row crops than on grass. The same kind of tests show that cultivation and seeding on the contour reduces both run-off and erosion very materially. These facts along with what was observed on this watershed are used in classifying the land.

Three main features downgrade the land in this classification: lack of organic matter and fertility, slope and susceptibility to erosion, and inadequate drainage. The following is a summary of the way in which the land was classified in the detailed study. Class I land included Berrien loam, Milliken loam and Peel clay loam with slopes under 2 per cent and with no erosion or only slight erosion. Class II land includes Pontypool sandy loam, Fox sandy loam and Milliken sandy loam even when flat and uneroded; and because of fertility





deficiency, lack of organic content and tendency to excessive internal drainage also included are the imperfectly drained soils which might be improved by artificial drainage, and Class B and Class M slopes with slight to moderate erosion which might be controlled by special types of cultivation. Class III land includes the poorly drained soils and soils with Class C and D slopes with slight to moderate erosion.

Any Class IV land, by definition, is that which must be restricted in its use and on which special methods must be used. This includes the steep hummocky slopes (slope Class N) with slight to moderate erosion. Class VI and Class VII land include progressively steeper slopes and more serious erosion. Class V land, by definition, is suitable for permanent vegetation but not regular cultivation and includes all bottom land and muck deposits. Class VIII land, of use only for wildlife, includes worked-out gravel pits with steep slopes and rough gravel not suitable for planting.

#### 11. Capability Classification on the Whole Watershed

It can be readily understood that mapping of slopes and erosion in detail is a slow operation and could not be done over the whole watershed. Having done a detailed study area, the whole watershed was mapped in terms of the land use capability classification in eight classes. The unit areas are larger and the mapping is not so accurate, but, for the watershed as a whole, gives a reasonably accurate picture of the conditions that exist. For example, if 2,000 acres of land are shown as being Class II, it can be understood that most of the land included within the boundary is restricted in capability because of slope and erosion or because of inadequate drainage. It will be remembered in the definition of these classes that only the capability is rated and in each capability class there may be one of two or three types of land use or management required. To give further information, the reason for downgrading the land and a suggestion of the proper



type of management is given by adding a further symbol. Land of Class II or Class III which requires contour tillage to control erosion is indicated by the additional symbol of a "C". Land which is downgraded by reason of inadequate drainage, which might be artificially drained, is indicated by the symbol "D". Land of low capability, which cannot be brought into intensive use with any special methods of cultivation but which can only be managed by restriction cultivation, is indicated by the symbol "R".

The actual type of soil is not shown on this map, but a comparative rating is given and an indication of the type of management and use which would adjust land use to land capability.

The tables of figures given at the end of this chapter show the conditions on the watershed, a comparison of present use to use capability, and an indication of the extent to which the use of the land would need to be changed to conform to the use capability.

The land most suitable for cultivation is fairly intensively cultivated. That is, a large proportion of the Class I, II and III land is in crops in rotation. The small amounts in permanent pasture or woodlot are not significant. Deliberate efforts to check erosion and rapid run-off are not common on the Class II and Class III land.

Land of lower capability, Class VI and VII, is largely under woodlots or pasture but there is still some under cultivation. The production which might be lost by putting this land under permanent vegetation can well be made up by improved management of Class II and Class III land. Carrying capacity of pasture on Class VI land can be increased a great deal by the same methods of improvement now commonly used on better land.

The most critical problem is in respect to Class IV land, but as this involves only 3 per cent of the farmland it is not serious. Restricted rotations, winter cover and green





manure are required on this land, much of which is now exposed to erosion.

It can be seen from the tables of figures that about 80 per cent of the land is in Class I, II and III; that is, suitable for regular cultivation with special practices where indicated. Less than 70 per cent of the land is under crops in rotation so that the available land is more than enough. The establishment of forest and grass cover for conservation of water in the interest of the whole watershed is therefore feasible without changing the type of agriculture in the area.



## CHAPTER 7

### RECOMMENDATIONS AND PROGRAM EFFECTUATION

#### 1. Adjusting Land Use to Land Capability

The aim of a soil conservation program is to use the soil in such a way that it may be improved but never deteriorated. To achieve this aim each crop or cropping system and the methods of cultivation on each piece of land must be worked out to conform to the natural characteristics of that piece of land.

#### 2. Carrying Out a Soil Conservation Program

Most of the land is on farms and will continue to be under agricultural production. Therefore, a soil conservation program will, for the most part, be carried out by the farmers themselves. Some of the land is much more suitable for growing trees than for farming and will eventually come under some form of public ownership for the re-establishment of forest. Some of the land of lower capability is particularly desirable for recreation uses and the large city population nearby creates a strong demand for this type of land.

On any one farm a soil conservation program can mean a replanning of the whole farm set-up in extreme cases, or merely the adoption of a few special practices on some of the land. A farm plan, with the laying out of contour strips, establishment of farm woodlots and improved long-term pastures is a rather complicated procedure and requires supervision of technical personnel specially trained for this kind of work. Some special practices can be applied to a farm without a complete plan and can be done either by the farmer or under the supervision of some one trained in conservation work. A great deal can be done in this kind of work on individual farms but it must be realized that over a whole region good land use on all of the individual farms may not meet the requirements of the whole watershed. There are certain areas, especially near the headwaters which need protection to slow down run-off and





erosion so that streams are maintained in the summer, silt is not added to the rivers and the underground water-levels are kept up. Therefore, a pattern of land use is required in the region which may not be consistent with adequate management of any single farm. A gradual change in the type of land use, largely for woodlots, amalgamation of small holdings to provide sufficient cultivable land and the establishment of large zones of pasture may be required. Any steps taken towards this end can be guided by the map of land use capability in the acquisition of land for recreation purposes. The interests of conservation should be borne in mind so that trees and grass are established on land which require them.

### 3. Methods of Soil and Water Conservation

#### (a) The Use of Class I Land

Too much stress cannot be put on the importance of first class land in a soil conservation program. It is only by the best use being made of the good land that the poor land can be managed in accordance with its lower capability. No special practices over and above good farm management are required, but in the layout of the farm the crops in rotation should make use of the good land as fully as possible.

#### (b) The Control of Water

In many cases very fertile soils are restricted in their use by inadequate drainage, both on the surface and within the soil. Artificial drainage, by surface ditches and by tile, can bring these soils into production for the full range of crops suited to the area. To some extent this may be considered to accelerate run-off, and in the case of ditches which certainly speed up the overland flow of water this may be the case; but underdrainage by tile and a good deal of the function of ditches is to improve the internal drainage of the soil, which entirely changes its physical structure. The soil, thus improved, has a far greater capacity to absorb and hold rainfall and this is in every respect desirable.



Although it is desirable to improve the use of land by drainage, it is also valuable to hold water for stock watering, maintenance of ground-water levels and stream flow, for fire protection and possibly for irrigation. Wise management of springs and surface streams, and the construction of small ponds for farm purposes is an important part of a conservation program.

(c) Organic Matter

The restoration and maintenance of a good proportion of organic matter in the soil is vital to good soil management. Soil with organic content absorbs water and retains it and makes soil fertility readily available to the plants. The two most common practices are the rotation of crops and the application of animal manure. To these practices might be added the use of winter cover crops, ploughing under of green manure and field composting. For organic matter to decay and be incorporated in the soil, it is necessary to have a good proportion of nitrogenous matter. This is automatically provided for in the case of organic matter or green manure if there are legumes in it. The incorporation of stover, trash, stubble and straw into the soil calls for the addition of nitrogenous matter which may be in the form of mineral nitrates. This is called field composting.

(d) Grasses and Legumes

Crops may be classed as soil building and soil destroying. In the latter class are the grains and the inter-tilled crops. These take nutrients from the soil and put little or nothing back into it, and their cultivation promotes burning up of organic matter in the soil, erosion and leaching of nutrients in the subsoil. Grasses and legumes, on the other hand, are soil-building crops; the legumes because they can combine nitrogen from the air into the soil (if they are in a healthy state or have been inoculated). Grasses, even when cut or grazed, leave the remains of their root systems in the soil and when the sod is ploughed under some of the





vegetation above ground is turned into the soil to enrich it. This principle is fairly well understood and widely practiced, but it cannot be stressed too much in the subject of soil conservation.

(e) Winter Cover

Much of the sheet and rill erosion occurs in the autumn after crops are in and ploughing finished, or in the spring before seeding is done. Vegetative cover will stop a good deal of the soil erosion and where land is under sod or is planted with winter grains this is accomplished automatically. It is advisable, on land which might otherwise be left in fallow over the winter, to seed winter cover crops such as rye. These protect the land against erosion and constitute a means of adding organic matter to the soil. This might appear to be an additional step to be taken in an already overcrowded program, but if consideration is given to other methods of cultivation than ordinary ploughing this practice can be worked into a program of farm operations without adding to the year's work.

(f) Diversion Terraces

Increase in mechanical operations on the farm tends to enlarge fields. In sloping land this gives a wider sweep to water and may encourage erosion. It is possible to check this by building across the slope a channel for the water in the form of a terrace. The water is then diverted across the slope to the side of a field where it may be safely delivered down hill in a water course which is kept permanently under grass. This system is particularly useful in country which does not have long smooth slopes suitable for contour tillage.

(g) Grassed Waterways

If a small depression along which water flows towards the streams is exposed by cultivation, there is a tendency for gully erosion and the covering of the lower slopes with sediment. Also, the soil that is washed from the fields muddies the streams and may eventually almost obliterate them



with the sediment that is deposited in them. It is desirable then to keep these waterways under a permanent cover of good turf. If the water running down hill is carrying soil, the soil is filtered out by the grass and held, and may even enrich the soil along the water course. The water which is delivered to the streams is much cleaner. It may be convenient to keep under sod a wide enough strip to be cut and raked for hay, the yield of which may be quite high and there is no loss in the use of the land.

(h) Contour Tillage

When slopes are cultivated up and down hill, or the drill rows go up and down, the run-off of water is accelerated and erosion aggravated. If the furrows and rows of crops are on the level, then each ridge of soil acts as a tiny dam slowing up the movement of the water. If the soil is in good tilth, much of this water will be absorbed into the ground. Contour tillage has therefore two very desirable results -- it check erosion and it puts more of the rainfall into the soil for the use of crops and to re-establish groundwater levels. On anything but the mildest slopes, contour tillage should not be undertaken at first without some guidance by a technically qualified person. If the contours are not properly laid out it is possible for enough water to accumulate to force its way through the contour ridges and scour out a gully. When this happens it tends to make people lose confidence in this type of thing.

(i) Strip Cropping

In a four-year rotation it is possible to lay out a field in alternate strips on the contour. One set of strips may be cultivated for grain or intertilled crops for two years in a row. The other strip is seeded for grass and legumes and cut for hay two years in a row. Half-way through the rotation, the use of the strips is reversed. When water runs across the exposed soil any soil wash is trapped by the





grass on the muddy strips. The laying out of contour strips requires the use of a level and the planting of the field with respect to the slope, the size of the plough lands and the area under each type of a crop. This should only be done by competent people - until the farmer has learned all the tricks of this type of cultivation and can carry it out himself. The setting up of contour strips is one of the more involved operations in establishing a farm plan.

(j) Long Term Improved Pasture

Some land is so susceptible to erosion, to fertility depletion and lessening of organic content that it cannot be cultivated regularly. It may, however, carry highly productive pasture. The grass resists erosion, helps build up the soil and maintains organic content. It will do these things and provide highly productive grazing only if it is well established and well looked after. Breaking up of old sod, re-seeding with desirable mixtures of grasses and legumes and the application of fertilizers are necessary to get a good turf established, which will provide lush, succulent, nutritious pasture. To maintain pasture in good shape, it should be fertilized at intervals, animal droppings should be raked out, weeds should be mowed at least twice a year and the grazing controlled so that the grass is not cut too short nor allowed to grow so long as to be rank, coarse and unpalatable. In the more serious erosion on farmland the establishment and maintenance of good pasture is the most important single remedy.

(k) Woodland Management and Reforestation

These subjects are discussed in some detail in the Forestry section of this Report. The maintenance and establishing of woodland on the watershed will, however, be largely in the hands of individual farmers and it is recommended that they make application to their Agricultural Representative and Zone Forester for advice in these matters. Exclusion of cattle from woodland is a very important part of good forest management, but in many cases this will appear to



cut down the grazing on the farm. It can only be stressed that any loss in grazing through excluding cattle from the woods can easily be made up by the improvement of existing pasture or by the establishment of good summer pastures. As to the provision of shade for the animals, this can be done by providing wind-breaks, under individual trees or along edges of woodlots, particularly if the woodlot is on the south side of the pasture.

#### 4. Soil Conservation on the Individual Farm

In some cases only part of the farm requires any of the special practices mentioned above, and the farmer can use his own judgement in applying the methods correctly. Where the methods are unfamiliar to him he would be well advised to get the help of the Agricultural Representative or an extension man from the Department of Agriculture. If a farm requires to be planned to incorporate a number of conservation measures, it should be done only under the supervision of a qualified technician in this field. A service has been set up within the Soils Department of the Agricultural College to carry out this kind of work and can only be extended to the farmers as the demand for it grows. It is recommended that the River Authority co-operate with selected operators and with the Department of Agriculture in getting a number of farms planned and operated as "pilot farms" to introduce this type of practice on the watershed.

#### 5. Soil Conservation on the Watershed as a Whole

On this watershed, land use is not quite typical of agricultural land in Southern Ontario, largely because it is so near to a large metropolitan area. There are changes in land tenure and land use constantly taking place and both public and private recreation areas are being established. The maintenance of a good flow of clear water in the streams is desirable to both farmers and city people. Therefore it is necessary for the over-all requirements of the watershed to be kept in mind by everyone who has anything to





TABLE V  
PRESENT LAND USE COMPARED TO USE CAPABILITY

Capa- bility Class	F	P	H	G	R	O	X	U	Z	Total
I Acres %	634 2.8	1,024 4.6	6,280 28.1	9,652 43.3	1,002 4.5	1,413 6.3	874 3.9	1,290 5.7	66 .3	22,235 100.0
II Acres %	415 2.3	1,042 5.7	4,999 27.4	7,157 39.6	1,088 6.0	1,263 7.0	1,066 5.9	948 5.2	185 1.0	18,163 100.0
III Acres %	212 4.0	600 11.2	1,437 26.9	2,001 37.5	320 6.0	457 8.5	185 3.5	127 2.4	-	5,339 100.0
IV Acres %	91 5.5	235 14.1	407 24.6	525 31.6	103 6.2	45 2.7	127 7.6	25 1.5	103 6.2	1,661 100.0
V Acres %	1,417 25.9	2,425 44.5	395 7.2	331 6.1	112 2.0	159 2.9	509 9.3	86 1.6	20 0.4	5,454 100.0
VI Acres %	1,354 46.9	699 24.2	178 6.2	195 6.9	58 2.0	48 1.7	253 8.9	58 2.0	-	2,843 100.0
VII Acres %	185 28.3	273 42.1	46 7.1	40 6.2	15 2.3	28 4.3	55 8.5	7 1.1	-	649 100.0
VIII Acres %	8 31.0						18 69.0		-	26 100.0
Total	4,316	6,298	13,242	19,901	2,698	3,413	3,087	2,534	381	56,370

F - Woodland

P - Pasture

H - Hay

G - Grain

R - Intertilled Crops

O - Horticulture

X - Idle

U - Urban

Z - Recreation



do with the land. If the pattern or map of land capacity is constantly referred to when the use or tenure of land changes, it should be possible in a relatively few years, by voluntary action, to bring the use of the land of the whole area into accord with the capabilities of the soil. Two examples of this may be given. Land suitable for reforestation may be acquired by the Authority and put into the recommended Authority Forest. Liquidation of estates may make available certain properties which include only small areas of land suitable for regular cultivation and large areas which should be, for conservation purposes, under pasture. These may be acquired by nearby land holders who can use the pasture, or possibly by the Authority, especially where this land lies next to the Authority Forest, improved by them and leased to neighbouring operators who need the grazing and who may be counted on to keep the pasture in good condition.

#### 6. The Land Use Capability Map

Accompanying this Report are two maps -- one showing the present land use and another showing the land use capability. To a great extent, the land is pretty well used according to its capability but many adjustments can be made. Wise management of the better class of land and the use of the lower classes of land for pasture and woodland would not materially change the type of agriculture on the watershed. The pattern of land use which conforms more nearly to the pattern of use capability is the ideal towards which all those interested in conservation should work. These maps are recommended for serious consideration by the Authority and by all agencies and individuals concerned in any way with agriculture.









CHAPTER 1  
THE FOREST

1. At the Time of Settlement

Conditions have changed so completely on the Don Watershed in the last hundred years that it is difficult to form a clear picture of what they were in the days when settlement began, but early writings along with the patches of woods remaining do help in reconstructing the scene.

"The river makes its exit into the bay through a large marsh and the land near its mouth is low and flat.... the land all round the harbour is low and swampy and apparently of inferior quality and could not be easily drained as it lies almost on a level with the surface of the lake"<sup>1</sup>. When Governor Simcoe arrived in 1792, there was a "grove" of oaks in the curve of the Taddle where he laid out the town site of York. This was probably a part of the oak plains which almost certainly covered most of the lacustrine soils which had formed part of the bottom of glacial Lake Iroquois. Smith describes the lower part of the Don Valley as follows: "The scenery on the Don is pretty and picturesque being a succession of hill and dale, the soil is generally sandy loam varying in quality, some portions being poor and others particularly rich with a clay subsoil. The timber is principally pine with a mixture of hemlock, cedar, oak, cherry, etc.....The timber (of the County of York) consists of pine, beech, hard and soft maple, white and red oak, black and white birch, basswood, ironwood, hickory, cedar, elm, ash, cherry, tamarack and many other varieties.....Vaughan is an old and well settled township, some parts being timbered with hardwoods, others with a mixture of pine and hardwoods and large tracts covered with pine exclusively".

Mrs. Simcoe mentions a hill of pines above

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1.  
Canada Past, Present and Future - W.H. Smith, 1851.





Coon's Farm which was near the mouth of the second Rosedale ravine and describes pine plains extending from near Queen Street to the first ravine and north-west to Yonge Street, also from Castle Frank to Yonge Street north of the first ravine. The pine and oak plains were evidently open woods in which one could canter a horse over the bracken.

The "Poplar Plains" were a sparsely wooded area extending along St. Clair Avenue for about half a mile west of Yonge Street and about the same distance north and south. The trees were large and probably represented part of the oak-pine stand which had been burned over years previously.

Dr. Henry Scadding says the sides of the Don Valley were covered with mixed woods with patches of pine on knolls and ridges as far up as the forks of the Don. He mentions a hill of pines near Gerrard Street, evidently on the east bank, and says that at the foot of the bluffs there were strips of low, swampy ground and old river channels full of cedar, spruce, etc., while on the sides there was more hemlock, especially on the north and east slopes. The river flats were more open with large trees of elm and basswood.

A more recent description of the woods in the area now occupied by the City of Toronto has been made by Dr. C.D. Howe: "The City of Toronto for the most part stands on light, sandy soils deposited in the Iroquois stage of Lake Ontario and the vegetation is characteristic of such soils. The trees are mostly oaks and pines. There are, however, patches of heavier soils and where their forest remains it is composed of beech and hemlock notably in Ashbridge's woods in the eastern part of the city. North of the old Iroquois beach the soils gradually become heavier, with an increasing clay content, and oak-pine forest is replaced by maple-beech forest.

"On the western edge of the city in High Park and on the Humber Plains the vegetation is distinctly Carolinian in its relationship while on the eastern side it is



Alleghanian, the city being the dividing line between these two types of flora. The transition between the two types is very abrupt in High Park where one may pass in a few minutes from the Carolinian of the sand plains to the Alleghanian in the bottoms of the deep ravines"<sup>1</sup>.

Because the City of Toronto now covers the area of the Don Watershed originally occupied by the Carolinian Forest, none of it remains today except the vestiges which may be seen in the oaks of Queen's Park, Upper Canada College grounds, Rosedale and Moore Park. Remnants of the pine stands exist on the lighter soils along the slopes of the Don Valley. Outside the present urban area the forest was predominantly hardwood of the sugar maple-beech type but large pines grew throughout most of the watershed and almost pure stands of pine covered fairly extensive areas on the well drained soils of the till plain. Very little poorly drained land existed on the watershed so swamp types were very limited in extent, cedar and tamarack occurred in very small patches near the streams and white elm-silver maple in one or two areas where ponding had taken place in glacial times.

## 2. Since Settlement

"For five miles round the capital of Upper Canada (Toronto) scarcely one improved farm can be seen in contact with another; and even within gunshot of the place the gloomy woods rise up in judgment against its nefarious inmates. I say the 'gloomy' woods because nature does not appear in her full attire in the neighbourhood of Little York. The need of firewood has stolen from the forest its chief ornaments and left a parcel of scorched and decaying pine trees to frown over the seat of rapacity....It is true that around York and particularly to the westward the soil is inferior.

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1.

Natural History of the Toronto Region - 1913.





"It was once a tolerable trout stream but the erection of machinery, more particularly sawmills, has nearly exterminated the fish. In 1842 the Township of York contained 35 sawmills. In 1850 it contained 38<sup>1</sup> .

The attitude of the settlers to the forest was naturally antagonistic because the trees interfered with all their efforts at improvement and the great task of removing them must be accomplished before any new development, whether it be constructing a road, clearing a farm or establishing a townsite, could be undertaken. This inimical view of the forest along with the idea that the supply of timber was inexhaustible was so firmly established that it is only in recent years that it has begun to disappear.

The watershed of the Don River was settled primarily for agricultural purposes and it is doubtful if much of the timber which was cut was used for any other purpose than local consumption. The stream itself is small and has not cut its way into the moraine which might have made it a suitable stream down which to drive the pine logs which were produced in that area.

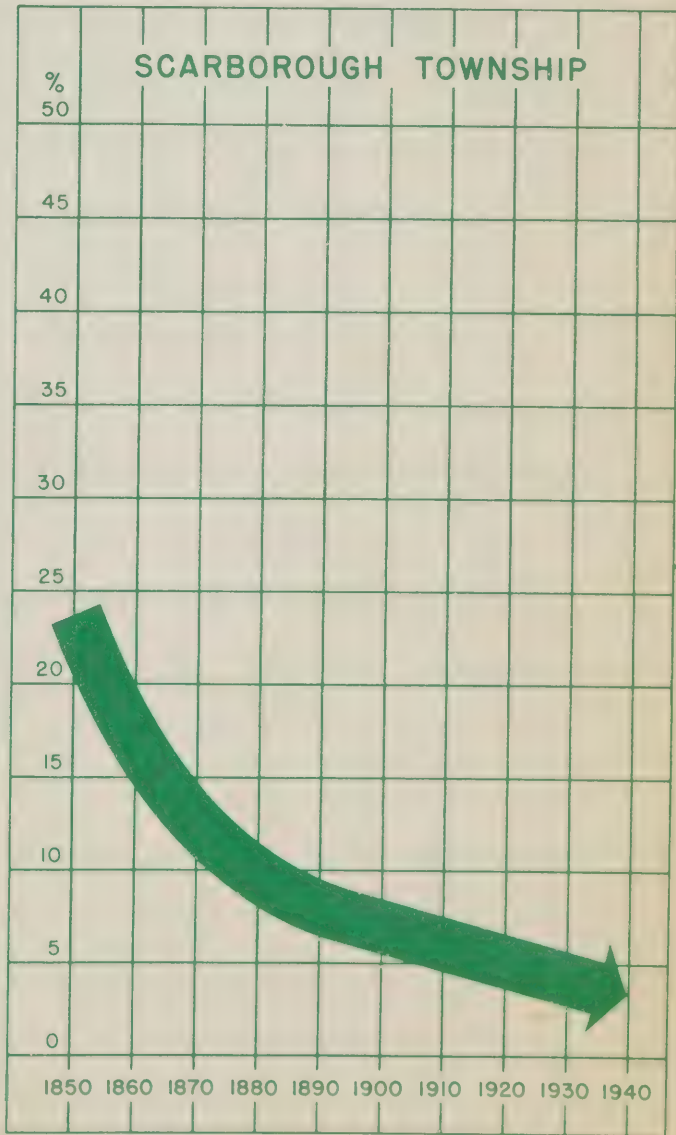
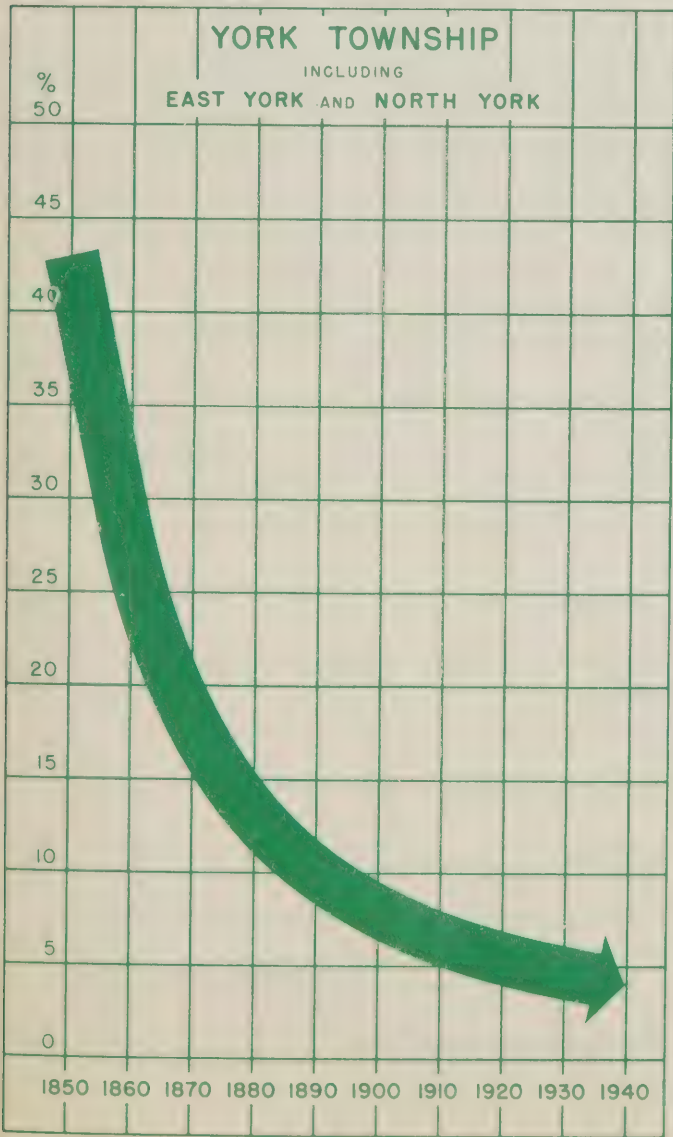
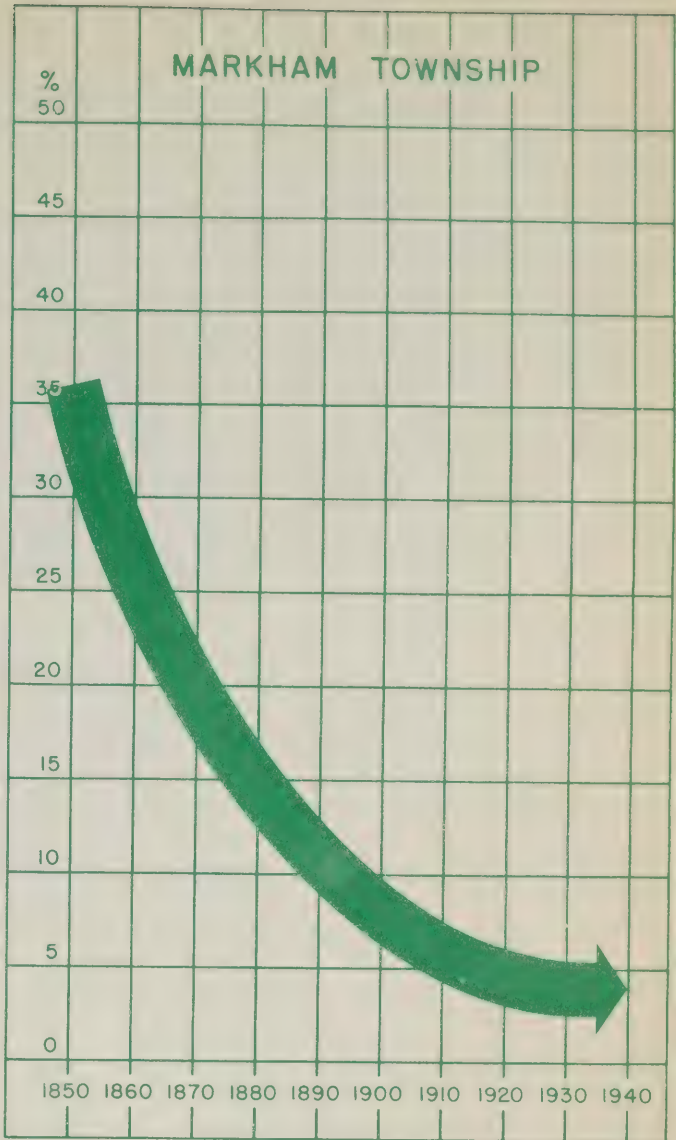
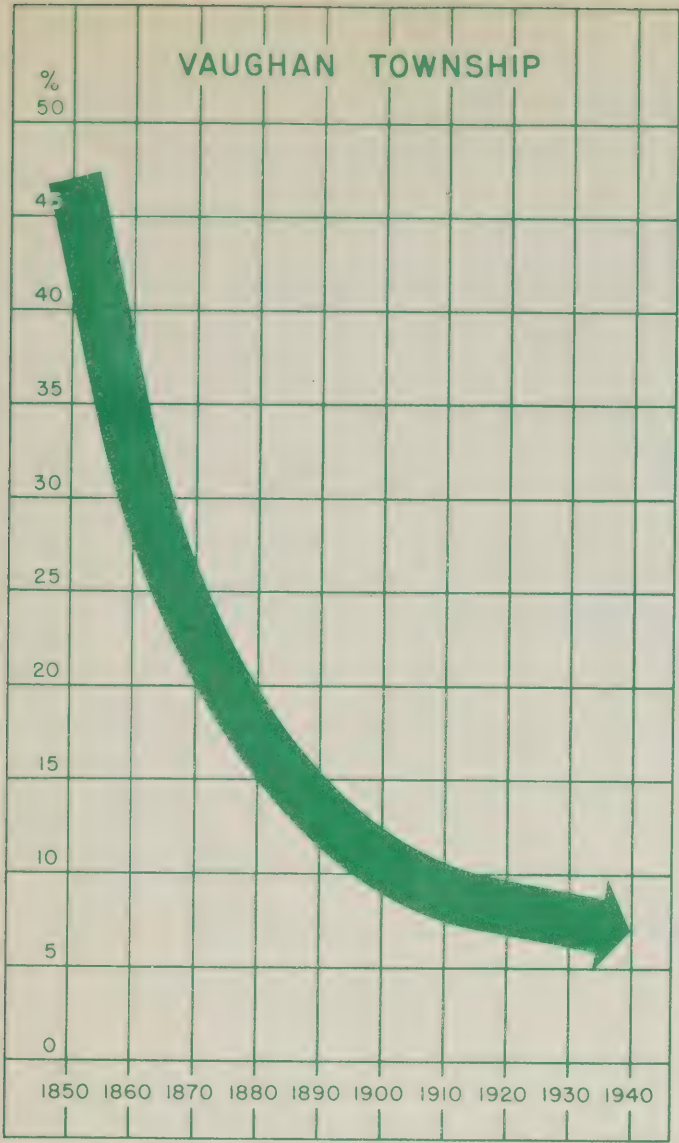
John McGregor writing in 1833<sup>2</sup> says: "The trees cut down for the timber of commerce are not, it is true, of any importance in respect to clearing the lands, although I have heard it urged in England, as an argument in favour of the timber trade. The lumberers choose the trees that they consider the most suitable and not one in a thousand is esteemed so. Almost every description of forest trees would be valuable for different purposes if once landed in the United Kingdom; but the principal part of the cost is the freight across the Atlantic, and in order that a ship may carry the greatest possible quantity, the largest and straightest trees

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1. Canada Past, Present and Future - W.H. Smith, 1851.

2. British America, Vol. II - John McGregor, 1833.





## PER CENT WOODLAND

CENSUS OF CANADA FIGURES





are hewn square, and not brought round to market, as the trees in England are.....The pursuits of the emigrant are, it is true, essentially agricultural; but let it not be overlooked that agricultural operations in a country covered with forests must commence with and be accompanied by the operations of the lumberer. The poor emigrant begins his labour with the axe, and his greatest, his chief resource in earning money wherewith to buy what he wants is in manufacturing shingles or staves, or in felling timber".

The cutting of the forests began with the clearing of small areas for forts and trading posts, then certain special trees such as white pine for masts and spars, oak and tamarack for ship-building were taken; then followed the period of pioneer settlement when land was cleared for farming and there was little market for the products of the forest except in the form of potash. Following this period and running concurrently with later settlement came the development of the lumber industry and the great square timber trade when the squared logs were rafted down to Montreal and loaded on the timber vessels. This trade reached its peak in 1890 and since that date the lumber industry has steadily declined but it is doubtful if the industry ever had much direct effect on the economic development of the Don Watershed.

The rate of reduction of the forests, however, was very great, for though settlement did not begin until the end of the 18th century, by 1850 occupied farmland in York and Vaughan Townships was more than 50 per cent cleared, and Scarborough was about 80 per cent cleared. By 1890 all townships were almost 90 per cent cleared. (See table). The table is more valuable in showing the rate at which the land was completely cleared rather than the actual rate at which the timber was cut because it often happened that only certain species or qualities of timber were cut at one time and the remainder was still classified as woodland. Also the definition of wood-



WOODLAND IN PER CENT AND ACRES ON OCCUPIED FARM LAND

CENSUS OF CANADA FIGURES

TOWNSHIP	TOWNSHIP AREA	OCCUPIED FARM LAND 1941	1850		1860		1890		1920		1930		1940	
			PER CENT	ACRES	PER CENT	ACRES	PER CENT	ACRES	PER CENT	ACRES	PER CENT	ACRES	PER CENT	ACRES
MARKHAM SCARBOROUGH VAUGHAN YORK E. YORK N. YORK YORK <sup>1</sup>	65,913 45,012 64,668 5,050 3,742 44,596 53,388	63,072 31,552 64,668 284 169 25,897 26,350	36	21,733	24	15,314	12	6,100	4	2,393	4	2,591	4	2,563
			17	7,602	23	10,487	8	3,565	6	2,310	4	2,019	3	1,317
			47	30,512	32	20,739	13	8,652	8	2,514	7	4,640	7	4,569
			43	22,933	27	14,388	10	5,411	6	3,228	4	1,979	4	2,018
TOTALS	228,981	185,642		82,830		60,928		23,728		13,530		11,229		10,467

1. Including East York and North York. In 1930 York Township was divided into three tps. now called York, E. York and N. York.  
2. Figures not available for 1870, 1880, 1900 and 1910.

MAPLE SUGAR PRODUCTION

CENSUS OF CANADA FIGURES

COUNTY	1850	1860	1870	1880	1890	1900	1910	1920		1930		1940	
	LBS.	LBS.	LBS.	LBS.	LBS.	LBS.	LBS.	LBS.	GALS.	LBS.	GALS.	LBS.	GALS.
YORK	163,941	194,762	113,522	38,807	30,192	24,539	851	20	2,220	80	4,467	144	2,401
	GALS.	GALS.	GALS.	GALS.	GALS.	GALS.	GALS.			GALS.		GALS.	
	252,469	299,933	174,824	59,763	46,496	53,190	1,311	2,251	4,590	4,590	4,467	144	2,401

For purposes of comparison the pounds of sugar figures in the top half of the table have been converted to their syrup equivalents in gallons and added to the syrup figures.





land varied from person to person, and one farmer might consider a certain cut-over area as pasture while another would call it woodland because considerable reproduction or young growth still remained.

The actual measurement of woodland areas within the Don Watershed made in 1949 shows a total of 5,443 acres or 6.1 per cent of the total area.



CHAPTER 2  
FOREST PRODUCTS

1. Early Policy

Previous to 1836 the only persons authorized to cut timber on the public lands were the contractors for the Royal Navy or those holding licenses from them and there was great infringement of the regulations and much illicit trade, but in this year the first steps towards making the forest resources a source of revenue to the Province and "so securing to the public a share of the wealth drawn from the public domain", led to co-operation among the officials and the termination of the contractor's monopoly. "The inauguration of a system under which anyone was at liberty to cut timber on the ungranted lands of the Ottawa lumber region on payment of a fixed scale of rates to the Crown" overcame in large part the annoyance of the people and authorities in the colony against the export of the sound Canadian timber for the British Navy.

2. Masting

The selection of mast timber was made by government agents who went through the forest blazing with a broad arrow - the mark of the British Government. As late as 1827, when Peter Robinson was appointed Surveyor-General of His Majesty's Woods and Forests in the province of Upper Canada, he was instructed "to make a Survey of the Districts where there may be any considerable growth of Masting and other Timber fit for the use of His Majesty's Navy".

The mast and spar export to Britain was thriving in the thirties and forties and it was continued intermittently as late as 1855. The British trade dropped off noticeably after 1854 and this may be attributed to the Reciprocity Treaty with the United States in that year, "securing the free exchange of the natural products between Canada and the United States, including 'timber and lumber of all kinds, round,





hewed, and sawed, manufactured in whole or in part'," and the building of railway connections with the United States border cities.

### 3. Squared Timber

The squared timber trade commenced, no doubt, somewhat later than the mast trade and was carried on simultaneously with it from the thirties.

Squaring timber consisted of selecting large trees, mostly white pine, and squaring the best part into one long stick. In the earliest days of the industry the timbers were squared on all four sides to a fine "proud edge", but later when the best timber had been cut they were squared with a rounded shoulder or "wane", which was known as "waney timber". Such methods, of course, were wasteful since the finest grained wood was sacrificed in the operation, but this was the type of material called for by the British market.

The timbers were transported by river, by teams or by railway to the lake and were built into huge rafts, on which the lumberjacks built shanties and lived during the trip down to the timber coves at Quebec.

### 4. Saw Material

From 1800 on the cutting of timber had been one of the most important domestic businesses in most parts of Southern Ontario and a very considerable business was carried on.

In order to convert logs into boards the first method used was pit-sawing. This was sometimes done on the bank of the river, as such procedure saved the necessity of digging a pit.

The more usual methods of pit-sawing appear to have been the digging of a pit or building of a platform with a simple but firm and strongly constructed framework. In either case the framework was made the right height for one man to stand underneath, while the other man stood above on



the platform or astride the log. This hard method of sawing timber was laborious and twenty-five boards were a heavy day's work for two men; the boards being nearly always one inch thick, with planks two inches, and the occasional flooring of one and a half inches in thickness.

The first power saws were a direct development of the manually operated pit saw. These were called upright or muley saws and consisted of a saw set vertically in a wooden frame and moved up and down by means of a crank connected to the shaft of the water wheel.

"Wherever a settlement is formed in America a sawmill is very soon after, if not at the same time, erected. The number of saw-mills in the British colonies is inconceivable to those who are not familiarized to the rising settlements of new countries.

A saw-mill is, in fact, a most important establishment. It not only forms a nucleus or centre to a settlement, but a first rate saw-mill with two frames will give employment to four first rate, four second rate and two third rate sawyers; besides a measurer, a blacksmith and from thirty to forty men to prepare the timber required and for other requisite work connected with the establishment; twenty oxen and two horses are also necessary for hauling the timber required to streams and to other places. The boards, deals and scantlings sawed at these mills, excepting such as are required for the use of the neighbouring settlers, are rafted down the river for shipping. As fresh waters change the colour of the deals from their fresh whiteness to a dark grey and in the eyes of prejudice, depreciate their value, it becomes an object, but one that can only be attended to occasionally, to carry them down in bateaux, scows or on timber rafts".<sup>1</sup>

In describing the Don River, Smith says: "It is about two miles and a half to Taylor's Paper Mill (presumably from the mouth). Here is also a saw-mill.--- The

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1. British America Vol. II - John McGregor 1833.





## YORK COUNTY

\* In all blank spaces the item is not listed in that census  
(1). Includes maple  
(2). Represented entirely by "Others - Value \$" below  
(3). Includes fence posts, rails, railway ties, logs for lumber, pit props, etc.  
M = M BD. FT.

$$M = M \text{ BD} \cdot \text{FT}.$$



principal mills on the Don above Taylor's are the York Mills, Metcalfe Mills and the York Hill Steam Mills at and near Hogg's Hollow and the Thornhill Mills.<sup>2</sup>

The lumber cut on the watershed of the Don during the first ten years of settlement must have been small in quantity. It was chiefly used for building in the Village of York and was cut, almost certainly, close to the two or three saw-mills which were operated in that period. All the lumber for government buildings was cut and sawed on the Humber. Lumber sawed in the York area was very far from meeting the needs of the settlement even as late as 1805. Lumber was imported from the United States in considerable quantity and probably continued to be brought in up to 1812. By that time a few more mills may have been built on the Don, bringing the number near York up to five or six (including a saw-mill on Garrison Creek). The lumber from the German Mills saw-mill, east of Yonge Street, was used locally and this would also apply to the saw-mill at Thornhill about 1801.

This importation of lumber must have stopped during the War of 1812 and between 1815 and 1825 12-14 new saw-mills were built on the Don. Lumber probably began to be exported from the watershed about 1820. However, at about this time there began to be a considerable demand for building materials in York and this went on increasing as the town grew. Undoubtedly some pine must have been cut for timber in the Don area although lumbering was precluded from the lands from the mouth to Bloor Street.

There are some early references to rafts in Toronto Bay, but the indications are that, if this timber was cut in the region, it was cut near the lake and there are no references to log driving on the Don. It seems very likely that some attempt was made to use the river for logs or rafts, but the conditions of the lower part of its course would make this very difficult except in the spring flood. Freshets

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2. Canada, Past, Present and Future - W. H. Smith 1851.





frequently took place before the bay ice had gone out, which would be another handicap for the lumbermen. Altogether the Don was an "ornery crick" from the lumbermen's point of view. As on the Humber, there seems to have been a revival of saw-milling about 1885, and there is evidence that a good deal of local sawing with portable outfits was going on in the nineties, although by that time they had begun to use old timber from barns..

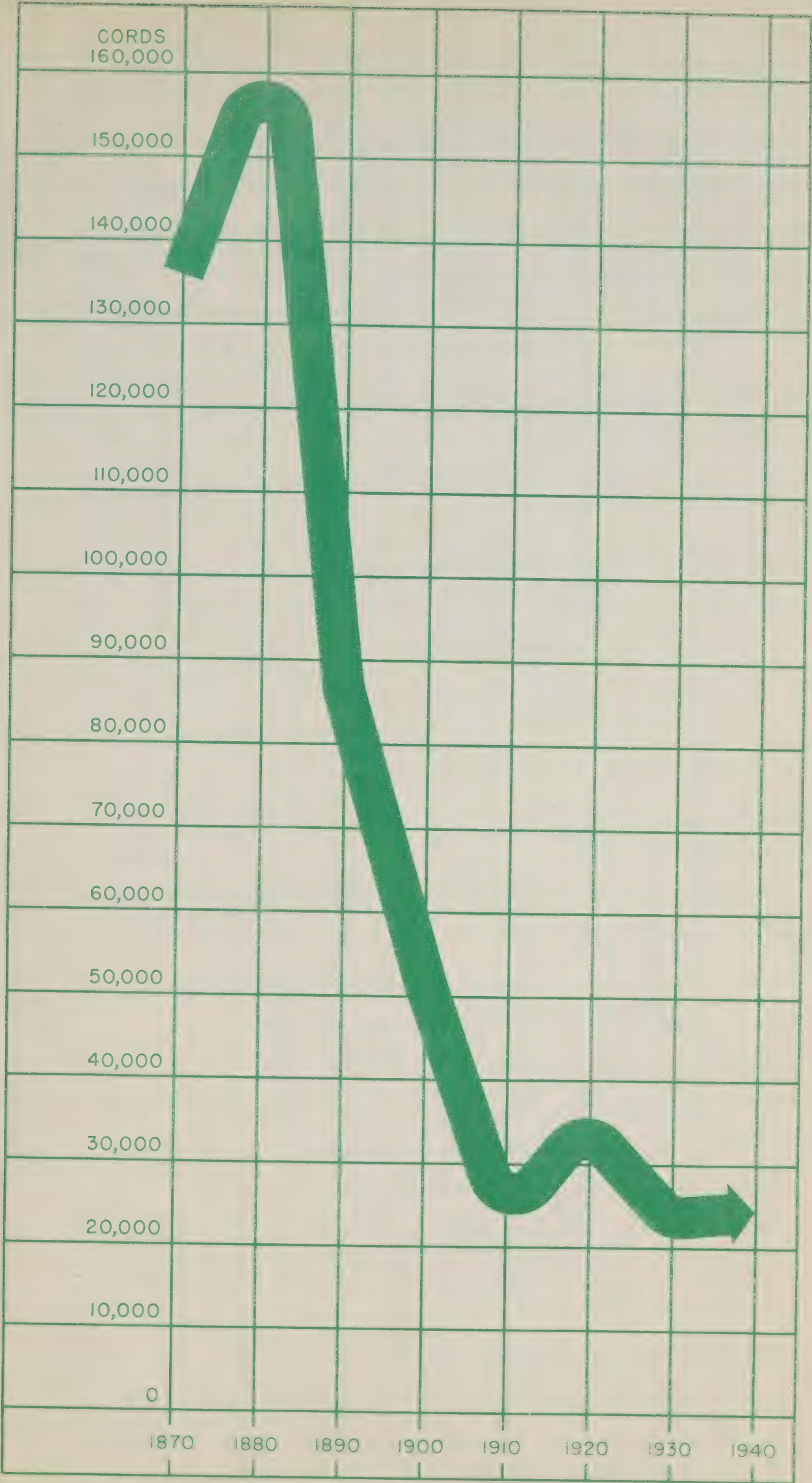
In the forties and fifties there were timber dealers and lumber merchants to the number of four or five in Toronto. The first steam saw-mill was being built in 1833. From that time on to about 1870 there were at least two steam saw-mills in Toronto.

There was an important saw-mill at Norway from 1833 to about 1890, worked by steam during most of that time. It would certainly draw some of its timber from the eastern part of the Don Watershed.

There were 27 lumber dealers in Toronto in 1869 but by this time the lumber was coming down from the north on the railway and being dumped into the harbour north of Queen's Wharf. Very little of it came from the Don Watershed. Lumber dealers in the watershed itself were not very many. One or two of them are to be found in the fifties. They were mostly owners of mills as, for example, Pollock of Richmond Hill who had a steam saw-mill in the village.

Today there are only three mills on the Don Watershed; two of these are small, portable mills which do custom sawing for local farmers and the third is the large primary sawmill of the T. H. Hancock Company in the Town of Leaside which draws all its logs by rail from outside the watershed. The first two have a very low production and are operated by farmers in the off-season. One saws only 5,000 board feet a year from logs brought in from a radius of five miles. The other has a capacity of 2,500 board feet a day but is usually run only for a short time in the evening. The





**FUELWOOD PRODUCTION**

CENSUS OF CANADA FIGURES  
YORK COUNTY





Hancock mill has a potential daily output of about 20,000 board feet or a potential annual cut of  $2\frac{1}{2}$  million board feet composed of 85 per cent hardwood and 15 per cent softwood. In addition to the above mills there are eight other mills within ten miles of the watershed to which farmers take their logs. These include four permanent mills, one at Nashville, two at Stouffville and one at Van Dorf, as well as four portable mills.

A study of the Census of Canada returns of forest products of farms for York County as given in the table, reveals the various trends and changes in the lumber industry fairly clearly.

From 1870 to 1890 much of the timber was squared and measured in cubic feet. In 1870 other products listed were firewood, staves, lathwood, tanbark and masts and spars. Between 1880 and 1890 the peak production of nearly all items was reached and squared pine alone in York County ran to almost a million cubic feet in 1880. In 1890 fence posts and telephone poles were added to the list of products as were railway ties. In the census years of 1900 and 1910 squared timber was still recorded in cubic feet and logs were measured in board feet; staves, lathwood, masts and spars, and tanbark disappeared from production.

In 1920 no squared timber is shown and even logs are no longer separated by species. The returns of the latest census covering the year 1940 name only one forest product and the rest are all listed together as others valued at so many dollars. The one product which has persisted throughout the records is firewood which in York County has dropped from a peak of 156,639 cords in 1880 to 24,493 cords in 1940.

One or two interesting observations with regard to individual species may also be made. Tamarack was listed regularly until 1890 after which it no longer appears, due to the depredations of the larch saw-fly which almost wiped it



out at this time. The returns show that some black walnut and hickory were cut each year until 1880. White pine was, of course, the species most sought after and next to it red pine which was never abundant, though 5,000 cubic feet were cut in 1880. In 1870 and 1880 pine and oak were the main species which were squared, but as these species became scarce, more ash, birch, elm and maple were made into square timber.

##### 5. Shingle Making

In the history of roofing used on the Don Watershed it is found that the first covering for human habitation on the river was the Indian elm bark lashed roof, while the first wooden covering used by the white man was a rude type of shingle called a "shake". These were made with an axe or frow and were cut from pine or cedar three or more feet in length. Although unshaped they were a great improvement over the bark covering.

Very early in the history of settlement, however, hand-made shingles were introduced. The shingle maker would saw the logs into short lengths or bolts and split them with a frow to the right thickness. The shingle was then fastened by one end in a device called a shingle horse and by means of a heavy drawknife the shingle was tapered to an edge. This method was rapid and it has been said that a good shingle maker would turn out from eighty to a hundred of these hand-made shingles an hour.

Up to the seventies and even later the shingle maker continued to use drawknife and frow, but gradually in the seventies the generation of craftsmen died out and the shingle mill, where shingles were sawn, became the general source of supply.

About 1860 shingles began to be made in quantity on the Don. They had of course been handmade before that time - some people specializing in the trade; but it had not been organized on a large scale. In the same way laths had been made by hand and "lath renders" are found in Toronto





in the thirties and forties, probably getting their material from one of the saw-mills.

There is no record of lath mills, but there were four shingle mills in the watershed in 1869 and there were several just outside the watershed at Edgeley, Laskey and elsewhere, which no doubt used some cedar from the Don swamps. Maple, Sherwood and Jefferson had shingle mills in the seventies and eighties. The one at Maple lasted until 1910 and that at Jefferson until 1892 at least, while the one at Sherwood had dropped off earlier.

#### 6. Fuel and Ties

From the earliest days of settlement on the Don to 1850 wood was the sole source of fuel supply. All species were used for this purpose including beech and maple - although these were furniture woods as well. With the inception of steamship travel and later the railway, and steam-driven factories, the forests of the area were ruthlessly cut to feed industry.

The greater part of the hardwood timber of any size in the watershed below Eglinton Avenue was probably consumed as fuel in the village and town before 1817. A house with five fireplaces or stoves would consume more than one large tree a day, and even as early as 1815 there must have been at least 600 such fires in the dwelling-houses of York. The fireplaces were extremely large in many cases. Unsplit wood was preferred as giving more heat and the backlogs were often large sections of tree trunks. Split wood was used to get a brighter fire. Only body wood was used, even large branches being left to rot. The practice was to select the best trees of the kind preferred until all these were gone, then to take the next best sort, and so on until the hardwood was exhausted. From about 1820 on the use of stoves began to reduce the domestic consumption of firewood and the size of fireplaces decreased, indicating that fuel was getting scarce.



Besides the domestic consumption of fuel, a large amount was used for commercial purposes. Bricks were made in the valley of the Don before 1800 (Castle Frank Brook). Bakers, breweries, distillers, smiths, wheelwrights and others consumed large quantities of wood fuel and to this was added from about 1816 on fuel required by the steam boats on the lake, and for ten years after 1852, railway engines burnt mostly wood. The same applies to the stationary steam engines of the thirties and forties. Altogether it was little wonder that the hardwood on the lower watershed disappeared very fast. On the upper watershed most of the trees were burned in clearing land.

In 1832 the Rev. Isaac Fidler of Thornhill writes:<sup>1</sup>

"In Canada we paid one dollar a cord, when laid at our door (at Thornhill). A person who is settled on a farm of his own.....obtains his fuel at small cost. If he were able to hire a wood-cutter to clear him an acre of land, he would pay twelve dollars; consequently, an acre and a half would be cleared for eighteen dollars. Supposing the same acre and a half to contain one hundred cords of wood, the cutting of it up for fuel, if the wood-cutter boarded at the house of his employer, would be a quarter of a dollar a cord or twenty-five dollars for the whole."

## 7. Road Materials and Fencing

In the early days the making of corduroy roads furnished another important wood use. The Indian trails had followed the ridges and natural conformation of the country, but when the "T-square" roads had been laid out in government offices they followed the arbitrary lot and concession lines regardless of natural contours. Many of these roads were built through swamps and in these places corduroy construction was used. Many corduroy bridges and culverts were also placed over the river and its tributary streams.

The building of plank roads - a form of highway in which the planks were laid crosswise and side by side - was done in several parts of the province.

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1. "Observations on the Professions, Etc., in the United States and Canada" - 1833.





The planking of roads in the Don Watershed was begun about 1845. About seven miles of the Yorkville and Vaughan Road was planked by 1850, two miles of King Street was planked in 1846 and the Don Mills Road was planked probably as far as Todmorden by 1850.

Much wood was also used for fencing and for this cedar from the swamps was most common. The troublesome pine stump also was used for this purpose in many parts of the Province, although in very early times it seems that it was left in the fields. Around 1900 the wire fence came into use generally and thereafter a fence-post industry was developed; these were cut as a rule to a standard length of eight feet while the diameter varied greatly.

#### 8. Woodworking and Planing Mills

During the early years of settlement in the rural districts and communities house trim for exterior and interior was made by the same man who constructed the frame of the house. The custom, up to the fifties at least, was for the carpenter to board with the family the winter before the new frame house was to be built and work all his timber into shape by hand, for both the exterior and interior use.

The early carpenter also made door and window frames and all interior trim of the house by hand and, for all these products, pine was the usual type of timber chosen. It would seem that doorsteps were one of the very few things for which oak was used in house building, at least up to the sixties. For example, an old-timer is reported to have said, when asked if they used much oak in the early days, "No, we didn't need to. We had plenty of pine."

Generally, as time passed, the building trades became more differentiated, and more craftsmen settled on the watershed.

Planing mills appeared in Toronto in 1850 and there were seven by 1869. In 1897 eleven were listed, but, of course, by the last two dates the material may have been



coming from anywhere.

In the watershed the planing mills with later sash and door factories started in the sixties and there are two or three to be found pretty steadily in the records from that date until the twentieth century, some of which are probably still running. Sash and door factories are listed separately from 1857 on, but by about 1885 "planing mill" meant about the same thing as "sash and door factory".

## 9. Wooden Implements and Vehicles

### (a) Early Tools

From the very early days hickory was preferred for the making of axe-helves or handles, while for beams or ox-yokes beech was used extensively and, for the loop, ironwood would probably have been selected. Spike handles were made of rock elm, white ash, hickory or ironwood; the beetle-head (a mallet used for pounding hemp and flax) was also made of ash, elm, hickory or ironwood. The hardwoods growing on the watershed were used almost entirely for making handles of implements, whereas pine was preferred for all building operations.

As settlement developed and more craftsmen arrived in the area, the general types of agricultural implements improved and metal replaced wood in large part.

### (b) Vehicles

From early times the making of vehicles progressed as carts, wagons, sleighs and hay and wood racks were built by the farmers. In the building of carts and wagons, whiffletrees, wagon-tongues and binding poles were made of rock elm, white ash, hickory and ironwood as were also sleigh-runners and hay and wood racks. Usually the wheels or runners of these conveyances were bound with iron, although the use of metal was limited in early days, since the supply had to be imported by water. In 1833 there were six wheelwrights in York, probably all making wagons in independent shops. There





were four coach- or carriage-makers and one or two of these were large firms<sup>1</sup> making stage coaches. A few years later the number of wheelwrights had increased to eight and there were five wagon-makers separately listed. The number of coach- and carriage-makers seems to have remained about the same until about 1851 but the number of wagon-makers had increased by 1846. There seems to be some overlapping between the two, for undoubtedly some of the coach-makers made wagons and they are occasionally listed as wagon-makers. After 1850 the number of wagon-makers became less, but by 1869 there were eleven wagon-makers and six carriage-makers in Toronto. In the watershed the first record of wagon-making is in 1846 and carriage-makers appeared in 1850. In 1861 there seem to have been about five of each. Ten years later the number of wagon-makers was about 16 which certainly includes one or two carriage-makers and possibly more. From the eighties on the number of wagon-makers and wheelwrights remained steady (about nine) but the number of carriage-makers declined sharply until 1882. From 1886 on the number was gradually growing less, owing to the competition of the factories.

The highest number of vehicle-makers on the Don Watershed seems to have been about 18 in 1882.

Even before 1861 much of the raw material was undoubtedly obtained from a considerable distance, but in the watershed itself the vehicle-makers would have used the local product.

(c) Cooperage

In the same way, the coopers in Toronto would have ceased to use lumber from the Don in any great quantity by about 1865. The number of coopers greatly increased until 1846 when 16 are listed. It is probable that the actual number of "cooperages" was less than this, some of the coopers being employees, but there were still 11 coopers in Toronto in 1869. On the Don the first cooper is listed in 1850.

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1. Evans & Company 1833-37, Owens Miller & Company 1837-46.



Yorkville had one or two cooperages in the fifties but the largest number listed is in 1871 (five) and this seems to represent separate shops. After that the number greatly declines. It must be remembered that the coopers made not only barrels, but also tubs and pails, and there was a factory specializing in pails at Langstaff from the late forties to the middle seventies at least which was operated by a Dr. Langstaff.

(d) Cabinet-Making

The cabinet-making trade was an important one in the York area from about 1820 until the fifties. In 1833 there were 17 cabinet-makers in York, five chair-makers and two turners. Chair-making was a trade specializing in the manufacture of the hard-seat kitchen or Windsor chairs and the lighter type of parlour chair with rush and (later) cane seats. Cabinet-makers also made chairs, but left the manufacture of this simpler type to the "chair factories". Turners undoubtedly made chair and table legs for the cabinet-makers, etc., but their specialty was bedsteads, which they turned out without help from the joiner. Turners used chiefly maple for bedsteads. Cabinet-makers used much cherry and also maple, the two being combined to produce the effect of mahogany and satinwood, fashionable at the time. Cherry was called "settlers' mahogany". The chair-makers used a great deal of hardwood of various kinds - white oak, ash and hickory were frequently employed for this purpose, as well as the finer woods. In the late thirties black walnut began to replace the cherry and maple for the better furniture, with butternut as a substitute. Of course, imported woods such as mahogany and rosewood were being used by that time in considerable quantity.

The number of chair-makers in Toronto grew less during the thirties and forties, but the number of cabinet-makers increased rapidly and also the number of turners. The Canadian Gazette, published in 1846, gives 25 cabinet-makers in Toronto, one chair-maker and five turners. The Directory for 1846 lists 39 cabinet-makers, most of whom seem to be work-





ing on their own, three chair-makers and five turners. Probably there was one chair factory at this date and at least 25 cabinet-makers' shops of some size. In 1851 there were nine large cabinet-making firms, of which the best known were Jacques and Hay, Drummond, and Wilson and Haigh, and 15 small firms. By 1869 the number of cabinet-makers had dropped to eight, including several of the large firms of 1851. There were by this date a certain number of furniture factories in the modern sense of the term. These are listed, with the dealers, to the number of seven, but no distinction is made between those who made furniture in factories and those who only sold it. There had already been eight furniture "brokers" in 1851. (These were probably dealers in imported factory-made and second-hand furniture.)

The late fifties were the great time for cabinet-making in the watershed outside Toronto. The number increased from one in 1850 to nine in 1857. There were still five listed in 1871 but after that the competition of the factories reduced the village cabinet-maker largely to repair work. The break in the cabinet-making trade as far as the Don is concerned must have come about 1856. After that time the furniture-makers could get their raw material by railway. However, up to 1852 most of the work of this trade must have come from the Don. Hay, of Jacques and Hay, had timber limits near Barrie in the sixties and seventies. The Toronto cabinet-makers exported to the rest of the Province from about 1840 on.

(e) Boat-Building

Boat-building was not very important until after 1860, when there was a period of ship-building in Toronto. However, it is hard to tell how much of the material for these ships came from the Don.

(f) Agricultural Implements

The tool-makers later included the makers of agricultural implements. There were various small factories making farm machinery of different kinds on the Don in 1845 and



threshing machines were being made at Thornhill in 1846. There was an implement factory in Toronto and from 1850 to about 1870 there was a fanning mill factory at Lansing.

The Patterson factory started about 1860 and lasted for a little less than 30 years at Patterson. It was the most important plant of this type in the watershed, but for a time there was another implement factory in Richmond Hill.

#### 10. Indirect Products and By-Products

The three indirect products of greatest importance were maple sugar, lye and tanbark. Maple sugar furnished the staple sugar for the pioneers - cane sugar at that time not having been procurable; lye or potash was used domestically in making soft soap - almost the universal soap; tanbark was utilized in dressing leather by the shoemakers.

##### (a) Potash

The ashery played an important role in the drama of pioneering life; and besides communal asheries, the individual ash house and the ash barrel on a platform for leaching was a characteristic of each farm in the days before the soap manufactory came into being.

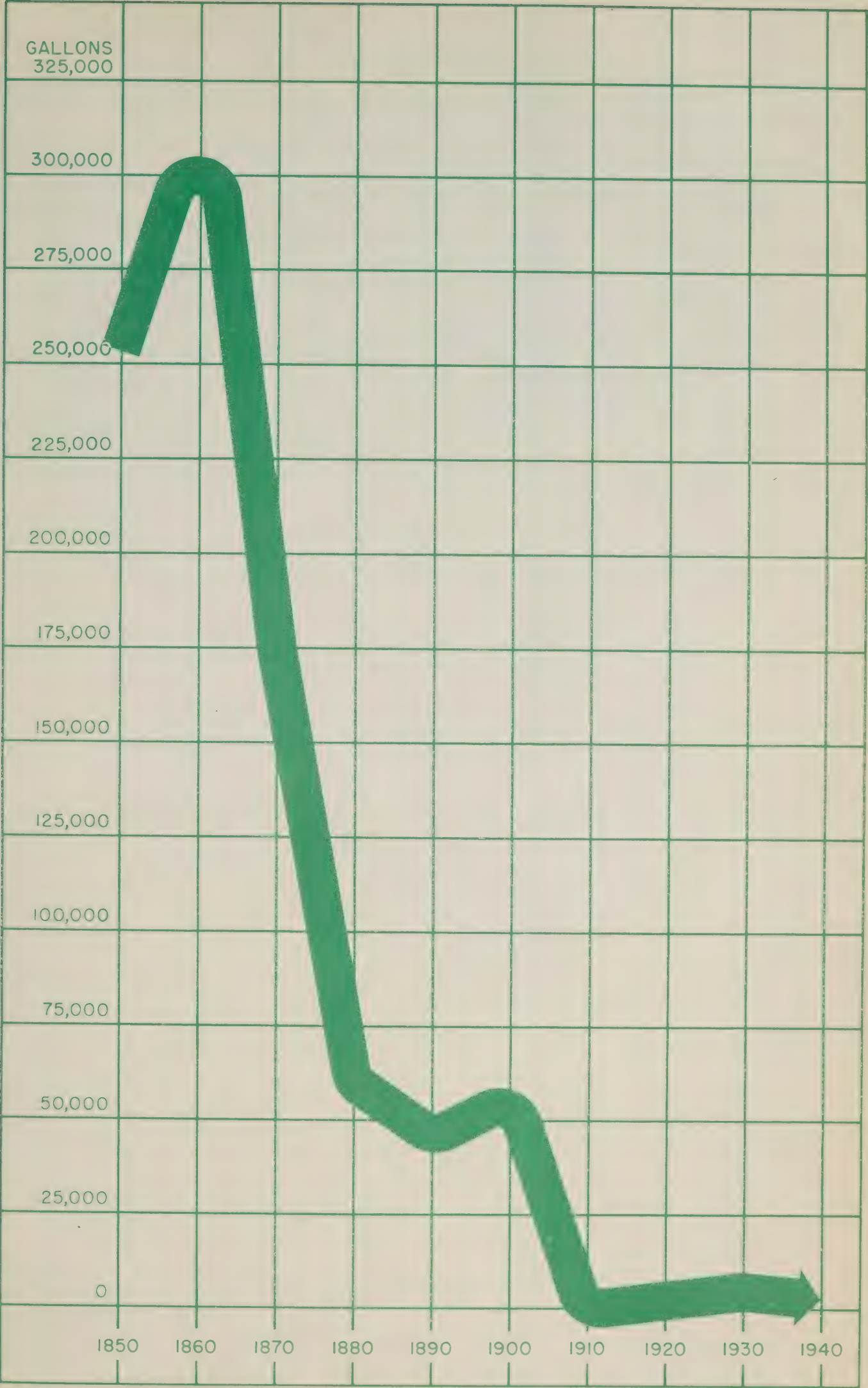
"Only from the sale of potash (exported to Great Britain and the United States for the dyeing of textiles) was there money for all other requisites. The potash was laboriously produced, men, women and children sharing in the heavy work. No less than 60 large maple trees were required for a barrel of 650 to 700 pounds of potash. The ashes of the burnt wood were leached in wedge-shaped wooden troughs and this liquid was then boiled down and cooled in huge vessels or coolers where the lye solidified. Two coolers would fill a barrel. If the settler marketed this on his own, 'toting it out' to the nearest buyer for ready cash, he might get only \$8.50 to \$9.00; but if he could wait and accept a down payment from the traders and shippers who teamed and hauled at a season of their own convenience, he might get \$10.00 or \$12.00 with a possible second payment after marketing it at Montreal, where a barrel might bring \$30.00, less of course commission, risk and portage costs. The need for this pitifully hard-won money led to clearing of more land than could be cropped and not infrequently to concealing for years the fact that the holding itself might not be profitable or capable of sustaining the settlers from the growth of its poor soil."<sup>1</sup>

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1. One Hundred Years A'Fellin', 1842-1942 Gillies Bros. Ltd.







MAPLE SYRUP PRODUCTION  
CENSUS OF CANADA FIGURES  
YORK COUNTY



(b) Maple Sugar

The table shows the Census of Canada figures for maple products in York County. It is interesting to note that up to 1910 production is all recorded as pounds of sugar, from 1910 on both pounds of sugar and gallons of syrup were shown, indicating the change from a pioneer necessity to the modern luxury. For purposes of comparison the sugar figures have been converted to their syrup equivalents and from these, shown in the second table, it will be seen that production dropped steadily from the peak of nearly 300,000 gallons in 1860 to 2,623 in 1940.





## CHAPTER 3

### PRESENT WOODLAND CONDITIONS

Physiographically the Don Watershed may be divided into three sections each of which has had its effect on the forest cover. At the extreme north end of the watershed, north of Maple and Richmond Hill, is an arm of the interlobate moraine; south of this, extending down to St. Clair Avenue west of Yonge Street and to Leaside east of Yonge Street, is the till plain; and south of this again are the lacustrine soils of glacial Lake Iroquois. Nearly all of this last section was covered by the Deciduous Forest<sup>1</sup> which reached its northern limit here. As this area is now almost completely urbanized it will not be considered in the Forestry section of this report and it may be assumed that all the remaining woodland belongs to the Huron-Ontario Section of the Great Lakes-St. Lawrence Forest Region, which region is characterized by a forest in which sugar maple and beech are the dominant species. With them are basswood, white elm, white ash, some yellow birch and red maple and red, white and bur oak. Small groups of hemlock and white pine occur within the association as well as a scattered distribution of large-toothed aspen, bitternut hickory, butternut, ironwood and black cherry; blue beech, slippery and rock elm and black ash are found locally on specialized sites such as bottom lands and swamps. In the southern part there was originally some intrusion of black walnut and sycamore. White pine occurs mostly on the lighter soils of the moraine, as does trembling aspen and large-toothed poplar where the pine stands have been burned over in the past.

#### 1. Survey Methods

Each member of the forestry party was provided with aerial photographs which were on a scale of 1,000 feet to the inch, and each photograph covered an area of approximately

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<sup>1</sup>. Forest Classification for Canada - W.E.D. Halliday, 1937.



1,000 acres, usually a block lying between two adjacent concession roads and two adjacent side roads; and mapping was done in the field directly on the photographs.

Every area of woodland, brushland, marsh, swamp and rough land was visited and notes made describing it. In the case of woodlots and plantations, detailed notes were made of their condition. Overgrazed woodlots and woodlots with very scattered trees which could be restored were classified as woodland. In short, where doubt existed as to whether an area should be classified as woodland or not, woodland was given the benefit of the doubt.

All woodlots were grouped according to the following classification:

	Hardwood	Mixed Wood	Coniferous
Virgin	H-1	M-1	C-1
Moderately Culled	H-2	M-2	C-2
Severely Culled	H-3	M-3	C-3
Second Growth	H-4	M-4	C-4
Young Growth	H-5	M-5	C-5

In this classification the term "hardwood" is used to denote all broad-leaved trees irrespective of whether the wood is physically hard or not. A hardwood type is one in which 80 per cent or more of the stand is composed of hardwood trees, a coniferous type is one in which 80 per cent of the stand is composed of coniferous trees and a mixed stand embraces all others.

Stands were also grouped according to forest cover types. See Table of Forest Cover Types, the description of forest types and map folded at the end of this Report.

Where plantations were encountered, records were made of planting, care, damage and survival.





FOREST COVER TYPES

TOWNSHIP	NO. OF WOODLOTS	ACRES OF WOODLAND	4	4A	5	6	9	10	11	12	13	14	14A	24
Markham	70	299	5				1	25	36					
Scarborough	30	205				9								14
Vaughan	336	2,231	316	173	1	41	70	67	138	4	23	42	5	
East York	78	463				19			5	3	73	22		231
North York	423	2,245	29	2		26	35	143	255	14	28	101		78
Total Acres	937	5,443	350	175	1	95	106	235	434	21	253	827	5	323
Per Cent		100.00	6.43	3.21	0.02	1.75	1.95	4.32	7.97	0.39	4.65	15.19	0.09	5.93

TOWNSHIP	NO. OF WOODLOTS	ACRES OF WOODLAND	25	45	47	49	51	52	57	58	59	60	60A	88
Markham	70	299							50		9	12	62	20
Scarborough	30	205				30	3		95				18	3
Vaughan	336	2,231		6		2	39	22	407	5	41	57	213	22
East York	78	463			1	62	52	33	39	3	9	3	54	63
North York	423	2,245	4		2		59	6	554	8		44	327	179
Total Acres	937	5,443	4	6	3	94	153	61	1,145	16	59	116	674	287
Per Cent		100.00	0.07	0.11	0.05	1.72	2.81	1.12	21.03	0.29	1.08	2.13	12.38	5.27



## 2. Forest Cover Types

In making the survey of the woodlots no attempt has been made to classify them according to forest types. Forest cover types only have been used and a forest cover type is defined as being "a forest type now occupying the ground - no implication being conveyed as to whether it is temporary or permanent"<sup>1</sup>.

A forest cover type may be either temporary or permanent, for example, the present stand may be aspen which has seeded in the area following fire. Aspen seed is light like dandelion seed and is carried easily by the wind, thus it quickly covers large areas; also, it is not exacting in its soil requirements and may be the only species which will grow under the soil conditions existing at the time. The fact of its growing and dropping its leaves on the ground gradually improves the condition of the soil so that more exacting species can grow. In addition its light shade frequently provides the correct light conditions for better species to get a start. As it is a short-lived tree it will die early and the other species will dominate the area. This succession may be carried through two or more stages until the species best suited to the area or best able to maintain itself on the area takes over, and this is called the forest type or climax type, as distinguished from the forest cover type which is the type occupying the ground at the present time. The most common forest type on the Don Watershed is sugar maple-beech.

No classification of forest cover types has been made in Canada for Southern Ontario, so the system used is a slightly modified form of that drawn up by the Society of American Foresters which covers the whole of the Eastern United States, consequently there are many types in their classification which do not enter Canada and this accounts for the gaps

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1.

Forest Cover Types of the Eastern United States - Report of the Committee on Forest Types, Society of American Foresters, 1940.





in the numerical listing of types occurring in the Don Watershed. The forest cover types of the Don Watershed may be listed as follows:

Number	Name
4	Aspen
4A	Poplar - oak
5	Pin cherry
6	Paper birch
9	White pine
10	White pine - hemlock
11	Hemlock
12	Sugar maple-beech-yellow birch
13	Sugar maple - basswood
14	Sugar maple
14A	Black cherry
24	White cedar
25	Tamarack
45	Bur oak
47	Black locust
49	White oak-black oak-red oak
51	Red oak - basswood - white ash
52	Red oak
57	Beech - sugar maple
58	Beech
59	Ash - hickory
60	Silver maple - white elm
60A	White elm
88	Willow

#### Type 4 Aspen

Aspen is a pioneer type coming in after fire or overgrazing. Though it avoids the wettest swamps, it does grow on soils that are wet throughout a good part of the year as well as on dry soils. Its associates may be white elm, paper birch, red cherry and balsam poplar with occasionally large-toothed aspen and green ash. It forms over 6 per cent of the woodland of the watershed, mostly on the morainic soils in the north-east corner of Vaughan Township.

#### Type 4A Poplar - Oak

This is a residual type on the light soils of the moraine following logging and fire. The oak usually consists of trees of white, red and sometimes bur oak which have survived due to their resistance to fire and poplar, either trembling or large-toothed, which has seeded in later. The



site is usually a white pine site and scattered trees of this species frequently occur with patches of good white pine reproduction appearing through the area. It comprises over 3 per cent of the woodland.

Type 5 Pin Cherry

Pin cherry is also a short-lived pioneer type occurring on well drained poor to good soils on heavily cut or burned areas. It may be succeeded by aspen or other hardwood types or by white pine. Only one acre was mapped of this type, which also occurred on light soil in the moraine area.

Type 6 Paper Birch

This is also a pioneer type of clear-cut and pastured areas succeeded by other northern hardwood types or white pine. Its associates include small proportions of aspen, white pine, hemlock, red maple, red oak and basswood. Frequently an understory of conifers or tolerant hardwoods develops. It occurs on sandy soils throughout the Don Watershed and constitutes over 1 per cent of the woodland.

Type 9 White Pine

White pine typically occurs on fresh, sandy loam upland but it also occurs on clay, in swampy areas and on loamy sand. On sandy soils in the moraine and along the edges of the valley of the Don it tends to be permanent but on heavier soils it is usually succeeded by sugar maple - beech, red oak - basswood - white ash, white pine - red oak - white ash, white pine - hemlock, sugar maple - basswood or white oak.

Its associates on light soils are aspen, red maple, pin cherry and white oak; on heavier soils yellow birch, black cherry, white ash, red oak, sugar maple, basswood and hemlock. It was originally fairly abundant on the watershed but now occupies less than 2 per cent of the wooded area.

Type 10 White Pine - Hemlock

Associated with this type are many species but none is particularly characteristic. The principal ones are







## FOREST COVER TYPES



**Sugar Maple-Beech, Type 57:** Covered most of the watershed but since it occupied the best agricultural land has been greatly depleted though it is still the most common forest cover type.



**(Above, right) White Pine, Type 9:** Occurs on the small patches of Berrien and Fox sand which occur throughout the watershed. The red pine is the only natural tree known to be growing in the Don drainage area.



**White Pine-Hemlock, Type 10:** Is present on cool slopes and is the most common coniferous type.



**White Cedar, Type 24:** Is found in small patches in swamps. It should be encouraged for the durable posts and poles it produces.





beech, sugar maple, basswood, red maple, yellow birch, black cherry, white ash, paper birch and red oak. It occurs on a range of sites from sand plains to heavy upland soils, but favours cool locations such as the slopes of ravines. It constitutes over 4 per cent of the woodland.

Type 11 Hemlock

This type occurs mostly in widely scattered bodies in cool locations, moist ravines and north slopes frequently in the sugar maple-beech type. Its associates are beech, sugar maple, yellow birch, basswood, red maple, black cherry, white ash, white pine, paper birch and red oak. It makes up  $7\frac{1}{2}$  per cent of the remaining woodland of the Don Valley and has survived well because of its preference for cool ravines where the land has not been so completely denuded as elsewhere.

Type 13 Sugar Maple - Basswood

This is a fairly important type occurring on loamy, upland soils. Its associates are white elm, green ash, yellow birch, white pine and red oak with ironwood and blue beech as subordinates. It forms over 4 per cent of the woodland of the watershed and the percentage is probably being continually reduced, as basswood is a more sought-after species than sugar maple.

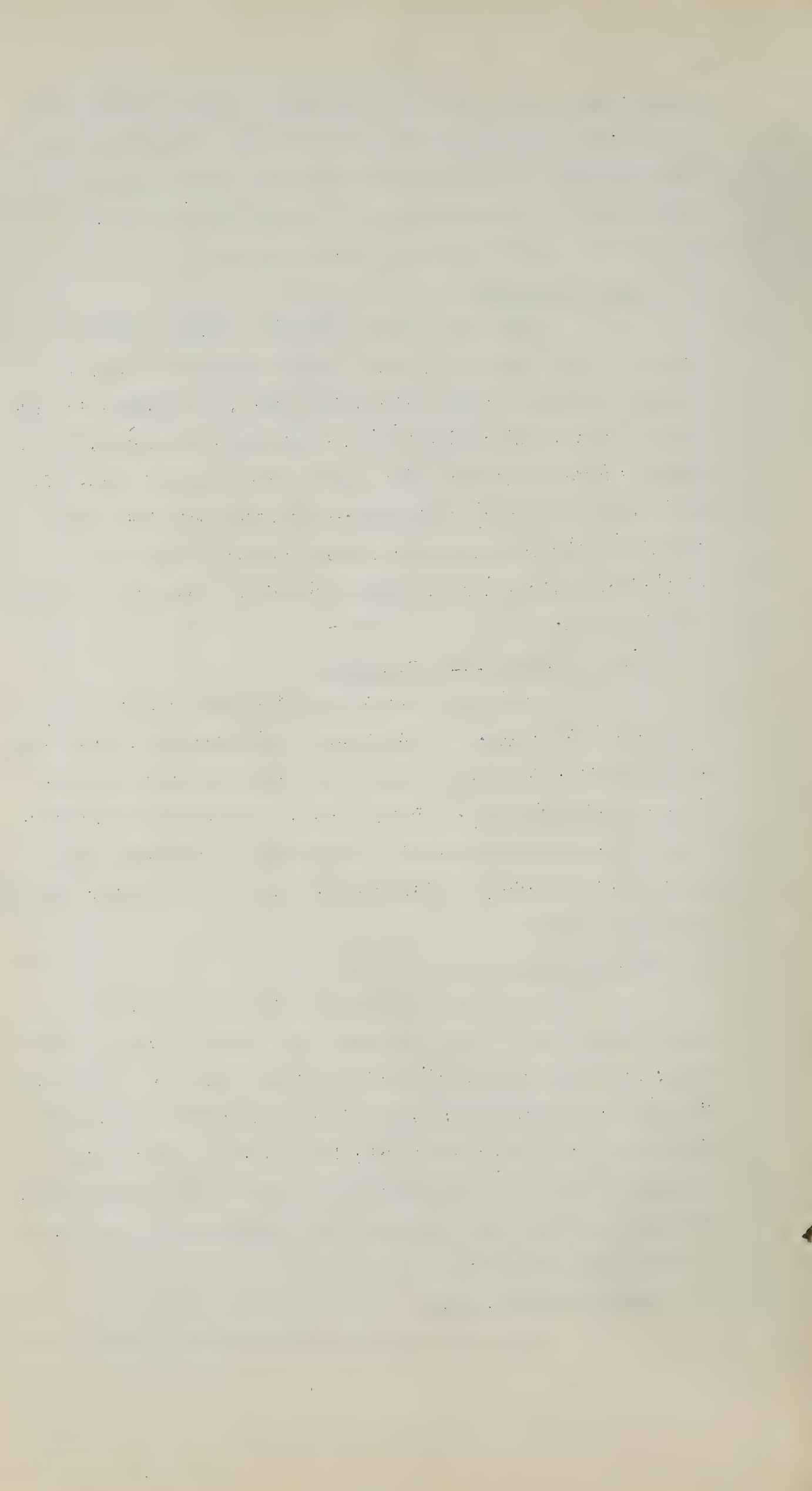
Type 14 Sugar Maple

This type undoubtedly originally covered a considerable part of the watershed but since it occupied fertile, well drained soil with good moisture much of it has been cleared for agriculture. A small proportion of other species such as yellow birch, white ash, red and white oak may be present. Today it covers over 14 per cent of the wooded area. Its area may have been increased in recent years by the removal of beech from Type 57.

Type 14A Black Cherry

This type is not common but second growth stands





occur usually on fertile, moist, well drained soils, frequently those formerly occupied by hemlock. Its associates may be sugar maple, red oak, red maple, white ash, basswood, butter-nut, white elm and hemlock. Only five acres were found on the Don Watershed.

Type 24 White Cedar

The associates of this type are tamarack, yellow birch, paper birch, black ash, red maple, white pine and hemlock. It occurs on sites of slow drainage which are not strongly acid, including the muck soils of the watershed, and is also present on poor pasture land and bottomland. It forms  $5\frac{1}{2}$  per cent of the woodland and is the chief source of fence posts and poles.

Type 25 Tamarack

Tamarack occurs in muck swamps with little or no drainage, associated with white cedar and less commonly with red maple, black ash and aspen. The trees are small and have grown since the near extinction of the species in the early part of the century. No extensive areas existed in the past and today it occurs on only four acres.

Type 45 Bur Oak

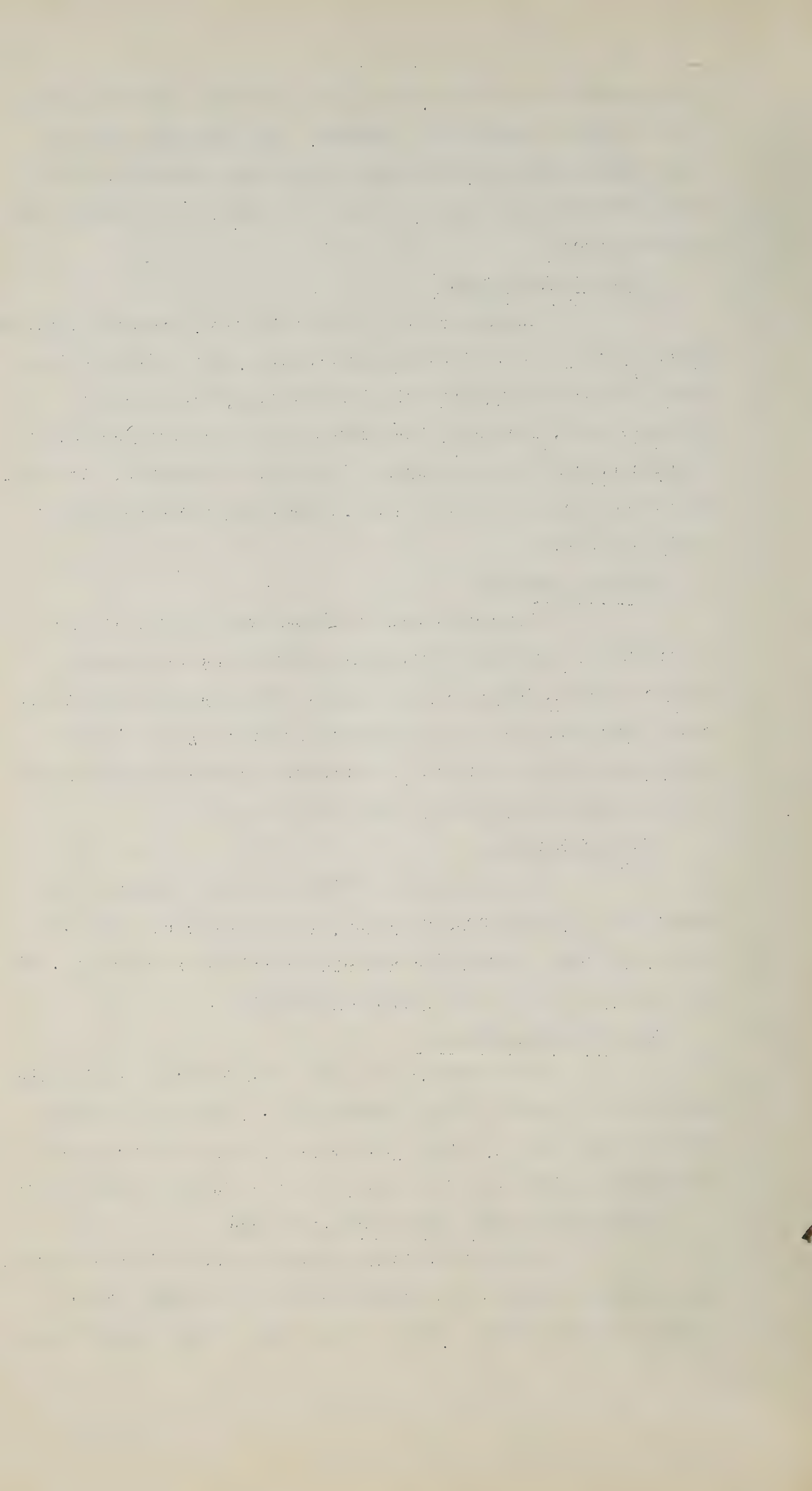
This is a very uncommon type in Ontario, the associates of which are red oak, white oak or black oak, and occurs on loamy slopes with south or south-west exposure. Only six acres are present on the Don Watershed.

Type 47 Black Locust

This species does not occur naturally in Ontario but has been planted fairly extensively, largely for erosion control purposes. It grows best on dry sites especially on limy soils. Three acres were mapped on the Don drainage area.

Type 49 White Oak - Black Oak - Red Oak

This type belongs to the Deciduous Forest Region and occurs on light soils in East York and the south end of Scarborough Townships. Being at the limit of the region black



oak is rare or may be absent. Associates are bur oak, shag-bark or bitternut hickory, white or green ash, sugar maple and occasionally a few black cherry, butternut or large-toothed aspen. About 150 acres still exist on the Don Watershed.

Type 51 Red Oak - Basswood - White Ash

Associated with the type species are red maple, yellow birch, aspen, sugar maple, paper birch and beech on deep well drained soils. This is not an important type, there being only 153 acres in the watershed.

Type 52 Red Oak

Red oak may be pure or associated with white oak on ridges in park-like stands. The trees may be short-trunked and flat-topped. About 60 acres occur throughout the watershed.

Type 57 Beech - Sugar Maple

This is regarded as the typical association of the climax with red maple, white oak, red oak, hemlock, white elm, red elm, basswood, shagbark hickory and black cherry. This type was undoubtedly very extensive in the Don Watershed but because it occupied the best land its area has been tremendously depleted. However, it still comprises almost 20 per cent of the remaining woodland.

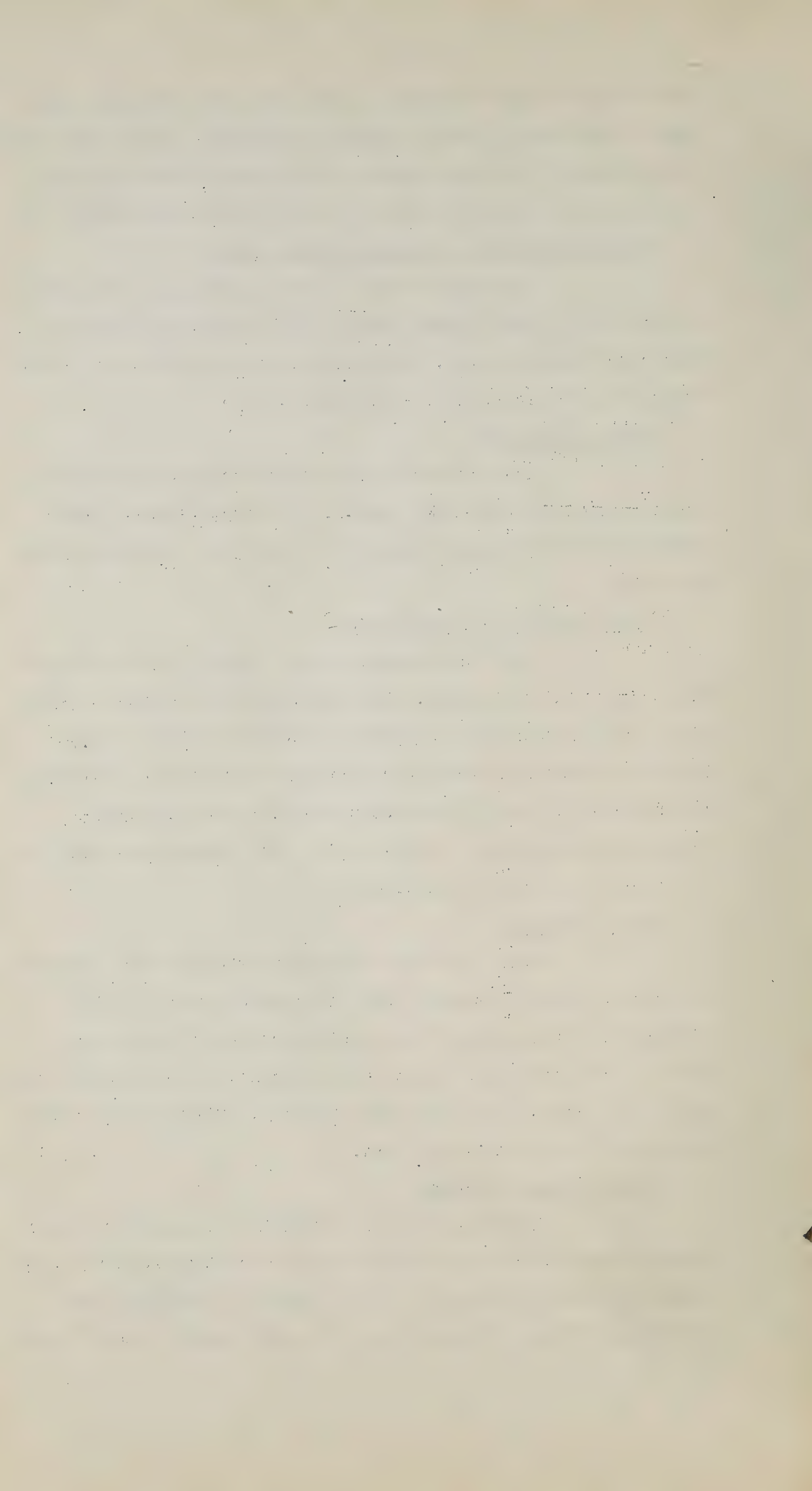
Type 58 Beech

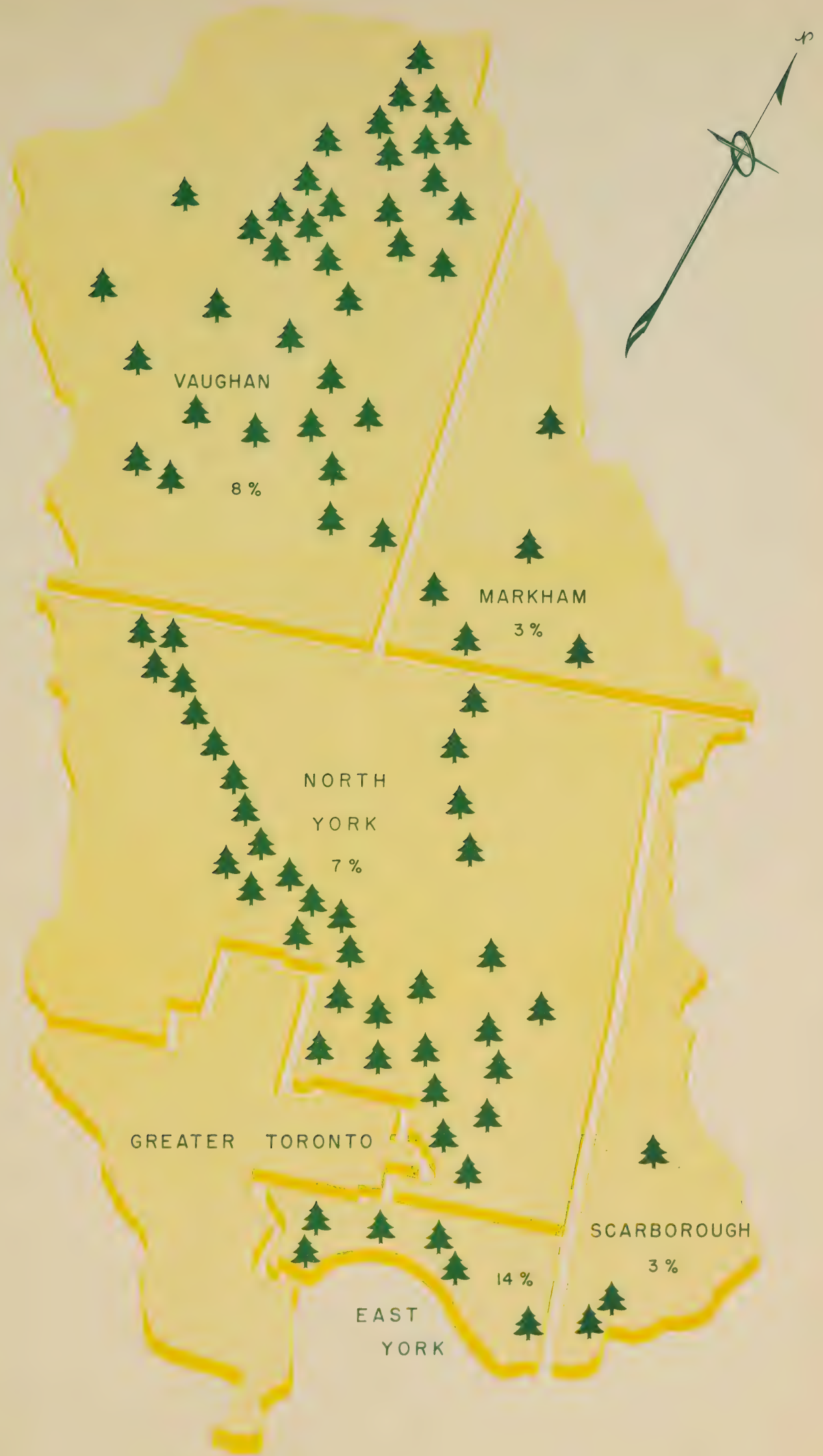
This type also belongs to the Deciduous Forest Region and is theoretically the ultimate dominant of the climax, but it is almost invariably associated with sugar maple. Its other associates are red maple, red oak, white ash, white elm, red elm and bitternut hickory. Sixteen acres were mapped in the Don drainage area.

Type 59 Ash - Hickory

This type is not listed in the American classification but has been introduced because of its frequent occurrence in Southern Ontario. It is usually a residual type following cutting, often of Type 60 silver maple - elm, though







## EXISTING WOODLAND

ONE TREE REPRESENTS SIXTY-FIVE ACRES OF WOODLAND



it may occur on any poorly drained, cut-over area. It is usually composed of a mixture of white, green or red ash and shagbark and bitternut hickory with bur oak, cottonwood, blue beech and ironwood as associates. It constitutes 1 per cent of the woodland.

Type 60 Silver Maple - White Elm

This is a type of flood plains and poorly drained soils unsuitable for general farming unless completely and adequately underdrained; for this reason it, and the similar white elm Type 60A have survived better than forest cover types on better drained land. Associated species are red maple, slippery elm, cottonwood, white, red and green ash, bur oak and bitternut hickory. This type represents only 2 per cent of the woodland of the watershed because there is very little poorly drained land in the Don drainage area.

Type 60A White Elm

Type 60A is very similar to the silver maple - white elm Type 60, but is found on drier sites as well as swamps and swales. Its associated species are the same. It is not listed in the American classification but has been introduced here because of its frequent occurrence in Southern Ontario. It comprises over 11 per cent of the woodland so that these two types together make up  $13\frac{1}{2}$  per cent of the total woods in the watershed.

Type 88 Willow

Several species are included in this type but the commonest is black willow. It occurs on wet sites often on the margins of kettles, and includes 287 acres of the Don drainage area.

The large map shows the distribution of all types throughout the watershed and from it the following observations may be made:

(a) Elm swamp types which covered limited areas have survived pretty well throughout the watershed.





(b) Cedar and tamarack swamps which were scattered along the valleys of streams have been severely overcut and pastured.

(c) Sugar maple types are still the most abundant and are found generally throughout the watershed.

(d) The chief pioneer types following cutting and pasturing are aspen Types 4 and 4A which cover light soils in the moraine.

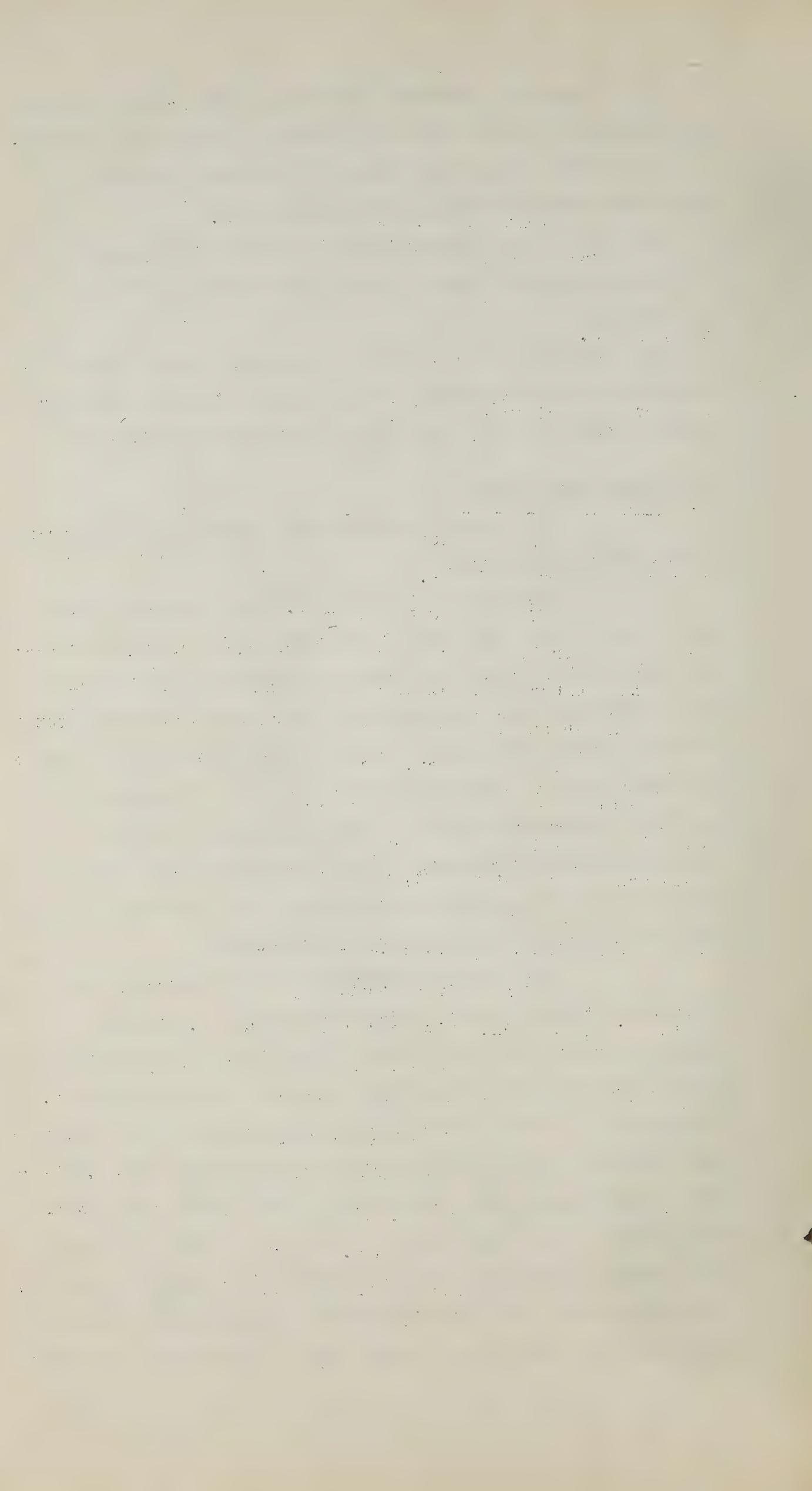
(e) The forest types of the Deciduous Forest Region have been practically eliminated though small patches of them may still be seen along the Don Valley in Scarborough Township.

### 3. Present Conditions

The results of the forest surveys are summarized in the accompanying table.

Woodland within the watershed comprises 5,443 acres which is 6.1 per cent of the total area of 89,997 acres. The total number of woodlots examined was 937, which includes many areas which are considered by their owners as constituting a single woodlot but which, because of the difference in types and age classes of certain sections, had to be considered in the field as separate units. Conversely, where property boundaries were not marked, woodland extending across two or more properties was sometimes considered as a unit because the type and age class remained constant throughout.

The conifers occurring in the watershed are white pine, hemlock, white cedar and tamarack. Red pine probably occurred in the original forest but only one tree was found in the natural state at the time the survey was made. White pine is fairly generally scattered throughout the watershed along the edges of the ravines and in the moraine. Hemlock is found mixed with hardwoods and white cedar and tamarack are present in the small swamps. There is no doubt that conifers formed a larger part of the woodland than they do today, but their numbers have been diminished because of the desirability of the lumber they furnish, and in the moraine recurrent



## 1949







fires have destroyed them while more fire-resistant species such as oak have survived. The situation at the present time is that of the 5,443 acres of woodland 75 per cent is classified as pure hardwoods, 19 per cent as mixed woods and 6 per cent is classified as pure conifers. Of the hardwoods, 7 per cent is over 18 inches in diameter at breast height, 15 per cent is 10 inches to 18 inches and of the remainder 59 per cent is second growth 4 inches to 10 inches and 8 per cent is young growth under 4 inches in diameter at breast height.

In the mixed wood classes 2 per cent is of 10 inch diameter at breast height, 16 per cent is of the second growth class while almost 1 per cent is young growth. In the coniferous woods 5 per cent is young growth and less than 1 per cent is second growth.

For the whole area the percentage of uneven-aged stands is considerably more than the even-aged, the figures being 83 per cent of the former and 17 per cent of the latter.

Grazing in farm woodlots is still fairly general, the percentage of grazed woodlands being 31 per cent for the whole watershed. The percentage of grazed woodlots is low as compared with other watersheds, largely because of the number of estates and farms which have no cattle. Grazing, as is well known, is detrimental to the proper development of any area. The number of cattle and the size of the woodlot have a direct relationship to the damage which is done. For example, a large woodlot is not as seriously affected by a few head of cattle as a small one, but on most farms the woodlot is small and is seriously damaged by large herds. Grazing in a woodlot destroys young growth, open areas appear and become covered with grass, which means that the maintenance of the forest floor, which is so important to the health of the stand, is interfered with and there is less likelihood of a renewing of the stand by reseedling from old trees. These in turn become



WOODLOT CONDITIONS

TOWNSHIP	TOTAL WOODLOTS	TOTAL ACRES	AGED		GRAZED		FENCED		REPRODUCTION			
			EVEN	UNEVEN	YES	NO	YES	NO	A	B	C	D
Markham	70	299	122	177	122	177	20	279	22	45	147	85
Scarborough	30	205	50	155	126	79	3	202	12	17	89	87
Vaughan	336	2,231	463	1,768	759	1,472	472	1,759	228	422	1,169	412
East York	78	463	34	429	-	463	-	463	-	32	370	61
North York	423	2,245	239	2,006	678	1,567	112	2,133	88	294	1,404	459
TOTALS	937	5,443	908	4,535	1,685	3,758	607	4,836	350	810	3,179	1,104
PER CENT		100.00	16.49	83.51	30.96	69.04	10.96	89.04	6.42	14.90	58.55	20.33





WOODLAND CLASS

TOWNSHIP	NO. OF WOODLOTS	NO. OF ACRES	WOODLOT CLASS											
			C2	C3	C4	C5	M2	M3	M4	M5	H2	H3	H4	H5
Markham	70	299			16	4	6	7	54	2	15	1	174	20
Scarborough	30	205							7		29		158	11
Vaughan	336	2,231	30	1	163	28	65	3	281	35	138	54	1,085	348
East York	78	463							23		6		415	19
North York	423	2,245	3	3	131	6	6	9	517	1	148	30	1,356	35
TOTALS	937	5,443	33	4	310	38	77	19	882	38	336	85	3,188	433
PER CENT		100.00	0.61	0.07	5.22	0.71	1.43	0.35	16.28	0.70	6.19	1.49	58.96	7.99

H -- HARDWOOD -- 80% or more of the main stand composed of hardwoods.

C -- CONIFEROUS -- 80% or more of the main stand composed of conifers.

M -- MIXED -- All other stands.

	Hardwood	Mixed Wood	Coniferous
Virgin	H-1	M-1	C-1
Moderately Culled	H-2	M-2	C-2
Severely Culled	H-3	M-3	C-3
Second Growth	H-4	M-4	C-4
Young Growth	H-5	M-5	C-5



stag-headed and are easily preyed upon by fungus and disease.

Fire is a serious factor menacing woodlands in the moraine area. It is not necessary to burn a tree to kill it; merely raising the temperature of the growing layer inside the bark to 150 degrees Fahrenheit will do the job and this is frequently what happens.

Due to the custom of grazing in the woodlots some stands have become open and require some planting. Of the areas examined 20 per cent are devoid of natural regeneration and 73 per cent require some planting to bring them back to fully stocked stands.

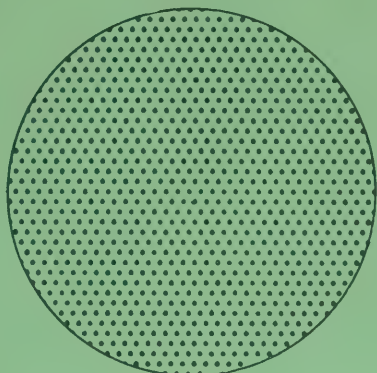
Cutting in woodlots and clean-cutting of whole areas has been carried on persistently in the moraine areas where white pine is found being cut into sawlogs of small sizes.

To sum up, 80 per cent of the woods are second growth and 9 per cent are young growth, the former ranging from 30 to 50 feet in height. The few lots containing the largest trees are composed of old hardwoods, elm, soft maple in the swamp areas and sugar maple, beech and basswood on dry sites.

From the foregoing it will be seen that the wooded areas of the watershed are sparse, comprising some 5,443 acres, but are worth preserving and improving. No systematic method has been used in the past, no attempt has been made to combat fire and only 10 per cent of the area is fenced from cattle.

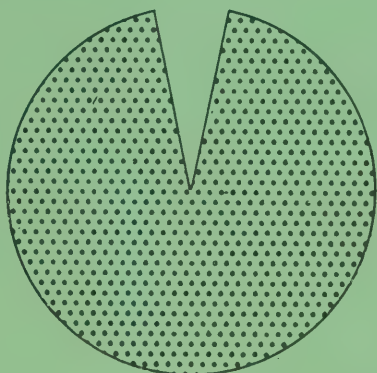






TOTAL WATERSHED

89,997 acres  
(100%)



CLEARED LAND

84,191 acres  
(93.6%)



WOODLAND

5,443 acres  
(6.0%)



SCRUB LAND

363 acres  
(0.4%)



## CHAPTER 4

### FOREST CONSERVATION MEASURES IN PROGRESS

With the exception of the sand and gravel areas of the moraine very little land suitable for forest tree planting exists on the Don Watershed. None of this is in large blocks but there are numerous small patches, such as the steep sides of the river valley, eroded slopes and hummocky ground which form parts of individual farms and are the responsibility of private owners. These should be, and in a very few cases have been, reforested.

#### 1. Private Planting

The free distribution of trees for planting was first begun in Ontario in 1905, and the following year a statute was passed which enabled a township council to exempt a part of the woodland of a farm from taxation; it provided that exemption be extended to:

"Any part of a farm used for forestry purposes or being 'Woodlands'; provided that such exemption shall not be greater than one acre in ten acres of such farm and not more than twenty acres held under a single ownership".

"'Woodlands' for the purpose of this paragraph shall mean lands having not less than 400 trees per acre of all sizes, or 300 trees, measuring over two inches in diameter, or 200 measuring over five inches in diameter (all such measurements to be taken at  $4\frac{1}{2}$  feet from the ground) of one or more of the following kinds: White or Norway Pine, White or Norway Spruce, Hemlock, Tamarack, Oak, Ash, Elm, Hickory, Basswood, Tulip, (white wood); Black Cherry, Walnut, Butternut, Chestnut, Hard Maple, Soft Maple, Cedar, Sycamore, Beech, Black Locust or Catalpa, or any other variety which may be designated by Order-in-Council, and which said lands have been set apart by the owner with the object solely, of fostering the growth of the trees thereon and which are not used for grazing live-





stock". -- R.S.O. 1927, c.238, s. 4, para. 25; 1934, c. 1, s. 4 (3).

In 1927 the exemption of taxation on woodland was made compulsory if applied for, and is interpreted as meaning planted as well as natural trees.

In 1938 the Assessment Act was amended to prevent assessment being raised on land after it had been reforested and now reads as follows:

"Land which has been planted for forestation or reforestation purposes shall not be assessed at a greater value by reason only of such planting". -- The Statute Law Amendment Act, 1928, C. 37, s. 2 (1).

Both these Acts were designed to facilitate the planting of trees on private land and should be taken advantage of by citizens anxious to improve woodland conditions on their own property, and at the same time benefit the whole community of the river valley.

For some years now, the Department of Lands and Forests has divided Southern Ontario into zones, each with its "Zone Forester" whose duty it is to give advice and assistance to private individuals and municipalities on the management of their woodlands and the establishment of plantations. The Don Watershed is included in the zone covered by the office at Maple. The Zone Forester's job is to supervise the establishment of county forests, demonstration and school plots and to help individuals with their woodlot and reforestation problems.

The Don Watershed is about equidistant from the Provincial Forests Nurseries at Midhurst five miles north of Barrie and Orono five miles north of Newcastle on Highway No. 2. These nurseries were established in 1922 and have served as production and distribution centres for trees ever since. In addition they both have a number of excellent demonstrations of forest plantings of different species and mixtures.

No extensive private plantations have been made;



the six largest are 9 to 14 acres in area and all are on private estates. The oldest plantation is on the property of Mr. Murray Fleming in which some of the trees are about 30 years of age. The total number of plantations is 90, comprising 224 acres or an average of about  $2\frac{1}{2}$  acres each.

## 2. County Forests

The County of Hastings was the first in the Province to interest itself in reforestation and as long ago as 1911 appointed a reforestation committee which was instrumental in having the Counties Reforestation Act passed. The committee also recommended<sup>1</sup> that "The Corporation of the County of Hastings purchase from the municipality of the Townships of Elzevir and Grimsthorpe certain lands containing 2,800 acres more or less for \$200" as the nucleus of a county forest. However, no further action was taken and the Act lay dormant till 1922 when the present policy of county forests was laid down. This work is done under the authority of The Municipal Reforestation Act -- (R.S.O. Chap. 323), which provides for the purchasing of land and the entering into agreements by the county for the management of such lands. No limit as to the size of the area is stated so that some counties have plots of a few acres, while others have forests of several thousand acres. If, however, a county wishes to enter into an agreement with the Minister of Lands and Forests for the planting and management of such county-owned land, the policy has been that the county must purchase not less than 1,000 acres. The agreements which are in force at the present time run for a period of 30 years, during which time the Ontario Government agrees to establish the forest and pay the cost of such items as fencing, buildings, equipment, labour, maintenance, trees, etc., in short, everything connected with the management of the forest.

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1. Minutes of the Meeting of the Council of the County of Hastings, December 8, 1911.





At the end of the 30 year period, the county has the privilege of exercising one of three options: First, to take the forest over from the Government and pay back the cost of establishment and maintenance; second, to relinquish all claim to the forest, where upon the Government will pay to the county the cost of the land, without interest; third, the forest may be carried on as a joint undertaking by the Province and the county, each sharing half of the cost and half the profits.

It will be seen from the above summary of the agreement that all a county stands to lose on such a project is the interest for 30 years on the purchase price of the land. Also, it should be pointed out that, in drawing up such a liberal scheme, it was done purposely to encourage the reforestation of land not suited to agriculture. Again, it was not the intention of the Government to have the counties stop at a minimum of 1,000 acres, as the overhead necessary on an area of this size could very easily be spread over an area of five or even ten times the size. As a matter of fact this is what happened in some counties where the councils have initiated a progressive reforestation policy.

This Act has recently been amended so that municipal councils of townships shall have all the powers, privileges and authority conferred on councils of counties, except that instead of issuing debentures to an amount not exceeding \$25,000, they shall have power to levy, by special rate, a sum not exceeding \$1,000 in any year, for the purpose of providing for the purchase of land for planting and protecting the timber thereon.

The agreement which has recently been drawn up between the Ganaraska Authority and the Ontario Government to establish and manage the Ganaraska Forest is substantially the same as that made with the counties, except that the Government has agreed to pay half the cost of the land and the agreement



for planting and management is to run until the year 2000 A.D.

No county forests have been established in the Don Watershed but the Vivian Forest established by the County of York in 1924, mostly in the Township of Whitchurch, is only 12 miles distant. It now comprises 3,400 acres and thinnings from the stands planted originally are already contributing to the carrying costs of the forest. The only land suitable for such a forest on the Don Watershed is the moraine country north-east of Maple and this should be established as a combined headwaters control and recreation area of natural woodland.

### 3. Municipal Forests

In addition to the block of land recommended for inclusion in the Don Forest are small areas on privately owned property. These are areas which cannot profitably be used for agriculture and where they are important from the standpoint of the public good, such as the protection of headwaters of streams, they should be the concern of the county or township councils.

Assistance with regard to the establishment of Municipal Forests and the supplying of free trees is still the policy of the Department of Lands and Forests. Moreover, as provided by the amendment to the Counties Reforestation Act, it is possible for a township council to enter into an agreement with private landowners for the reforestation of their property.

The amendment permits the council of a township to enter into agreements with the owners of land providing for the reforestation of portions of such lands. The agreements will prescribe the cutting conditions of all trees planted and such conditions will be subject to the approval of the Minister of Lands and Forests.

"Provision is also made for exempting such lands from taxation and for making arrangements with the Dominion and Provincial Ministers of Labour regarding conditions of labour





and payment of wages in connection with planting and conservation of such areas". -- The Municipal Reforestation Act, S.O. 1945, Ch. 14.

No Municipal Forests have been established in the watershed.

Before leaving the subject of municipally owned forests and forests which provide the local communities with at least a part of their livelihood, it would be as well to review what is being done along these lines in other places.

In Nova Scotia there is a community living on Hammonds Plains near Halifax which depends entirely on wood taken from small woodlands for its livelihood. In this settlement the largest woodlot is not over 400 acres in extent and because of the rocky nature of the soil the people are not able to augment their incomes by farming, though most families own a cow, a pig and some chickens. The wood from the woodlots is manufactured into barrels and boxes by more than 20 small mills which are largely family owned and operated. The people are thrifty and industrious; they have comfortable homes, are public-spirited and extremely forest fire conscious. This is a community which has developed naturally and yet resembles communities based on a forest economy which have been planned and established in Europe for a considerable time.

One of the most recent is the forest of Ae in Dumfriesshire, Scotland. It was established by the British Forestry Commission in 1927 and covers an area of 10,683 acres, of which 3,000 acres have been planted, 4,500 acres are scheduled for planting in the near future, 250 acres of the best land have been set aside for cultivation and the balance of 2,800 acres is unplantable because of its altitude but is used for sheep pasture in summer.

The forest is in charge of a forester who resides on the spot and under him there are foremen and gangs of workers. In the first year 16 men were employed, just before the war 27 full-time employees were engaged, and by 1960 about 90 men or



TREES DISTRIBUTED FOR PLANTING

YORK COUNTY

DEPARTMENT OF LANDS AND FORESTS FIGURES

YEAR	PRIVATE PLANTING	VIVIAN COUNTY FOREST	OTHER MUNICIPAL PLANTING	SCHOOLS
1905-12	45,200	-	-	-
1913-25	865,532	481,170	10,500	4,950
1926	218,845	217,350	-	600
1927	363,667	425,000	-	4,400
1928	846,452	176,000	9,100	1,700
1929	1,027,774	373,000	86,465	500
1930	742,898	165,500	3,750	11,300
1931	434,046	213,700	28,244	71,750
1932	1,037,340	-	5,400	800
1933	1,045,037	-	10,175	1,818
1934	750,812	16,000	16,050	12,789
1935	654,430	90,000	7,700	2,060
1936	655,185	149,500	18,400	8,475
1937	867,449	78,100	16,300	16,164
1938	909,512	194,000	15,350	26,470
1939	835,691	123,500	12,000	35,925
1940	909,684	93,250	18,650	13,684
1941	661,031	43,400	16,770	71,442
1942	612,232	6,000	8,650	57,513
1943	543,356	54,500	12,911	1,698
1944	481,664	11,000	1,300	53,550
1945	705,405	120,550	-	13,025
1946	774,255	199,800	-	2,382
1947	672,783	190,300	-	300
1948	759,073	206,300	10,262	- 1

1. Very few trees are now distributed to schools but many are planted by schools in the Provincial School Forestry Competition in the County forests and appear in the County Forest column.





one man for each 80 acres will be needed the year round for essential forest work. This does not take into account temporary employees who will be required for saw-milling, transport and other jobs. It is planned to create a forest village for the workers embodying a church, a school, playgrounds and sportsfields. The combination of the forest and the village dependent on it is something new in Scotland and represents an important stage in the resettling of men and women in the country. The village is to be the forerunner of other similar villages and in many parts existing villages will be revitalized by the stimulus of forest wealth.

#### 4. Demonstration Plantations

Two demonstration plantations have been set out in the watershed, one near the North York Township waterworks plant at Oriole in 1923 and one near the Richmond Hill water tower in 1925. The former is on the steep bank and bottom land of the valley of the east branch of the Don River. This is three acres in area and the trees, which are mostly Scotch pine, are 20 to 25 feet high and in excellent condition. The Richmond Hill plantation was two acres in extent, but has been badly neglected and very few trees have survived.

The value of such plots in showing landowners what can be accomplished in a very few years by planting trees is such that every township should endeavour to establish at least one plot.

These were established under the policy which was laid down by the Government in 1922 when it offered to assist municipalities in the establishment of small forest plantations for the purpose of demonstrating the use of trees on marginal and submarginal land. The requirements are that it be on a well-travelled road and that the land be owned by the municipality, in return the Government will supply the trees free. It is recommended that all the rural townships within the watershed establish plantations of this nature to serve as demonstrations in each community.





**Demonstration Woodlots:**

Such woodlots are supervised by the zone foresters of the Department of Lands and Forests. They must be close to well-travelled roads and serve as examples of properly managed woodlands.



**Polewood Stand:** This stand of sugar maple-basswood type is in need of thinning. Material removed would provide fuelwood.



**Sugar House:** Very little syrup and sugar is produced on the Don Watershed but Mr. Baker still practises the art within ten miles of Toronto.



**Hardwood Plantation:** On Don Head Farms in a corner where slopes made cultivation difficult.







5. Demonstration Woodlots

Demonstration woodlots are privately owned areas of woodland on which the owners have agreed to follow prescribed methods of woodlot management, outlined by the Department of Lands and Forests, under the Zone Forester and to permit access to the area by interested persons. Such demonstration woodlots and the influence they exert for the proper management of similar areas contribute to the total conservation effort in any watershed. When demonstration woodlots were established some years before the war, three were set up in the Don Watershed, one each in the Townships of Vaughan, Markham and North York. Supervision of these in recent years has been spasmodic at best and they have been seriously neglected.

6. School Forests

In order to encourage the establishment of school forests which would be planted and cared for by school children the Ontario Horticultural Association organized an annual competition in 1945 for which prizes are offered for the school having the best plantation and knowledge of forestry in each forest district. Prizes are provided by the Ontario Conservation and Reforestation Association and by Mr. J.E. Carter of Guelph. The winners in these district competitions are eligible for the Provincial Forestry Competition for which Mr. Carter furnishes \$100 in prizes. Schools in the Don Watershed were entered in the competition for the first time in 1949.

Trees have been sent out to schools in York County but these have been distributed to children for planting on the home farm and many of these have been used to form shelterbelts and windbreaks. The number of trees distributed for this purpose is shown in the accompanying table.



FOREST CONSERVATION MEASURES REQUIRED1. Source Areas and Reforestation Land

Source areas are of three types, namely:

- (a) Swamps      (1) on heights of land  
                    (2) in bottomlands
- (b) Springs
- (c) Tiled areas

The last type is usually a cultivated field which has been drained to carry off, not only surface water, but often water from former swamp land and from springs which used to rise to the surface. In most cases these areas cannot be economically treated to act as storage areas and have been omitted from this discussion. The swamps on the heights of land are of the silver maple-white elm type which in many cases have deteriorated into willow-dogwood thickets through uncontrolled cutting and grazing. No swamp areas of this type occur on the Don Watershed. The swamps in the bottomland are, usually, either white cedar or mixed wood types, though hardwood swamps do occur. Swamps are frequently bordered by slopes on which springs arise, creating wet or moist patches on the slope and feeding the swamp below. These wet patches were originally covered with a stand of white cedar or mixed woods but as a result of cutting and pasturing now usually support nothing but sedges and occasionally rushes.

In selecting the area which it is felt should be set aside as a permanent natural water-storage area, all the swamp land has been included irrespective of its present vegetative cover, that is, all soft maple-white elm woods, willow-dogwood thickets, bog land and marsh areas have been enclosed. Adjacent woodland, particularly on slopes and covering springs, has been included as well as all adjacent land in the form of moraines and gravel pits. The minimum of land in the better land classes has been included, but in some cases it was impossible to omit them entirely when they





occupied positions immediately above springs or on a small part of a lot which was mostly composed of a poorer type of soil.

The Don Watershed does not lend itself to a very large program of forest conservation because the southern end is almost entirely urbanized and the remainder is on the whole high quality agricultural land. At the northern end of the watershed, however, there is an area of about 3,600 acres which, because of its rough topography, the sandy nature of the soil and the fact that the best tributary streams rise here, is recommended for acquisition by the Authority. This area should be developed as a forest to be called the Don Forest, which will serve the dual purpose of protecting the headwater streams and furnishing a centre for outdoor recreation. (See the Recreation section of this report).

Of the 3,600 acres 824 acres are wooded, 33 acres are covered with scrub growth and 2,743 acres are open land, as shown on the forestry map.

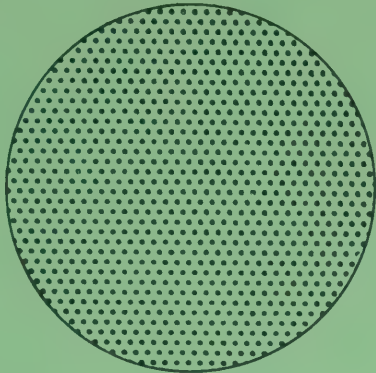
## 2. Scrub Areas

Outside the area recommended for the Don Forest there are about 330 acres of land covered with scrub growth, such as hawthorn, sumach and willow scrub. These areas are producing nothing of economic value and most of them should be planted with trees. In addition there are small patches on many farms, such as steep banks and isolated corners, which should be reforested, but these are the responsibility of the individual owners.

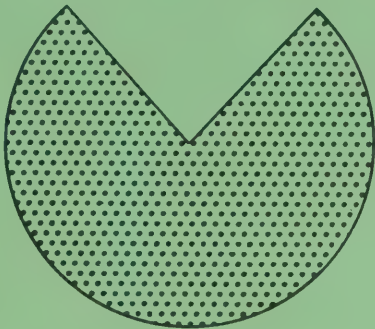
## 3. Woodlot Improvement

Improvement work in the woods, in addition to planting, would include the cutting of large, mature trees, the removal of dead and fallen trees and trees attacked by disease or infested by insects; defective and crooked trees, weed trees and those having wide, spreading crowns. Such

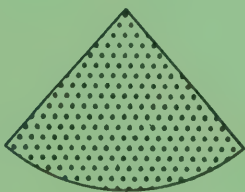




TOTAL SOURCE AREA  
3600 acres  
(100%)



CLEARED LAND  
2743 acres  
(76.2%)



WOODLAND  
824 acres  
(22.9%)



SCRUB LAND  
33 acres  
(0.9%)

LAND CLASSIFICATION - DON FOREST





improvement would include the cutting of this material into fuelwood as well as the scattering or burning of brush. Based on figures available for this class of work in other parts of Ontario, the time required would amount to sixty man-hours per acre.

#### 4. Controlled Woodlot Management

Before the necessary conservation measures on that part of the watershed exclusive of the proposed watershed forest can be properly co-ordinated, some system of controlled cutting of privately-owned woodlots must be established. The reason for this is that the average owner does not take a broad view of the value of forest cover and is not interested, to any great extent, in what may happen to land or stream flow off his property. The result is that throughout the watershed there is a systematic cutting of woodlots for the purpose of both lumber and firewood. This type of cutting has been in progress for many years and the portable sawmill has done a great deal of damage in removing, particularly, young, thrifty trees. The system of selling acre or half-acre blocks of timber for fuelwood is also another vicious practice for the reason that, when a purchaser buys such a block, in nearly every case he clean-cuts every tree which can be used, down to an inch or two in diameter. Some system of regulating cutting would correct this situation and certainly the areas which are connected in any way with the headwaters of streams or the feeding of springs, should be controlled to the extent that they cannot be clean-cut.

Where conditions warrant, a certain amount of cutting would be continued, but such trees should be marked by a competent person and provision made for restocking where necessary. The intention would be to interfere as little as possible with the economy of farm property where the supply of wood is concerned, but in some cases it would be necessary to subsidize the owner.



The question of clean-cutting of woodlots on this area, and for that matter throughout all of Southern Ontario, is of serious import, and is one of the chief reasons why some system of control should be instituted. For many years now conservationists have advocated controlled cutting of woodlots. In some sections, particularly in tobacco growing counties such as Norfolk County, the destruction of woodlots for the curing of tobacco has become alarming. It is admitted that the question requires delicate handling, but where the good of the whole community is envisaged some middle road of agreement could be arrived at. Furthermore, the distribution of free trees by the Government for conservation purposes is sometimes criticized, and rightly so, where on one farm the owner plants an area with seedlings and in the same year his neighbour clean-cuts a woodlot which perhaps protects the headwaters of a stream. In fact, so distorted is the relative value of tree planting versus established woodlots in the minds of some people that there are examples on record where municipalities have purchased land for reforestation and have allowed the owner to cut the timber before giving title.

It is admitted, of course, that there are extenuating circumstances when a farmer may consider it necessary to raise money by selling timber. This in itself is not so serious if the cutting is done in such a way that the benefits of the forest are retained. Young forests as well as old protect the soil and have water-regulating value, and the clean-cutting of such areas is a destructive and vicious practice which should be stopped.

The basis on which a regulation of this kind should be carried out is a consideration of the woodlot concerned. To make a blanket ruling that all woodlots on the Don should not be cut, or should come under one type of control measure, would not work to the best advantage of the community and certainly would not be in the interests of good forestry.





Some woodlots have reached the stage in which they are worn out, and if the land is good it should be cleared off and cropped. Others may be composed of a high percentage of worthless species and have no relation to water regulation in the countryside, and likewise could be disposed of to advantage. But where the woodland has a direct bearing on water regulation, erosion, retarding of the wind and similar benefits, the desire of the individual should be sacrificed for the good of the community. The whole question therefore resolves itself into an examination of each woodlot by a competent person and the prescribing of a program of management to suit each case.

#### 5. Fencing Woodlots from Cattle

The most progressive forestry action taken in Ontario in recent years was taken by the County of Halton in 1948, when the County Council passed a by-law to aid farmers in fencing their woodlots from livestock.

The by-law states that the County of Halton will grant a sum equal to the prevailing cost price of 8-strand fence wire with a single barb (not the cost of posts or labour) to a woodlot owner who will erect such a fence on one or more sides of his woodlot in order to enclose the woodlot completely, thus fostering forest growth by keeping livestock out. The woodlot must be of a size not less than two acres and livestock must be excluded for a minimum period of ten years.

Such action by the county council is of infinitely more value than the planting of many millions of trees artificially.

Every county should pass such a by-law and it is recommended that the Conservation Authority adopt a similar scheme.

The basic method of control usually advocated is cutting to a diameter limit, that is that all trees below a certain diameter, for example ten inches, should not be cut.





**Portable Sawmill:** One of the two portable mills on the watershed where a little custom sawing is done for local people.



**Scrub Land:** Small areas of sumach and willow occur particularly on the moraine which should be reforested.



**Hawthorn and Wild Apple:** Some areas of neglected pasture have been invaded by these tree weeds and should be planted with trees of commercial species.



**Fire Guard:** This very inadequate fire guard round part of its constantly burning garbage dump is Vaughan Township's only concession to forest conservation.







Such a regulation may or may not be good forestry. In most cases it would not be, because there would be much worthless material below this diameter limit, such as poplar, thorn, willow and other species, which should be taken out. At the same time there would be certain large trees above the diameter limit which should be left for the benefit of the forest, as well as trees suitable for re-seeding the area. The diameter limit should not be a fixed rule but simply a guiding principle; a sort of yardstick, on which the landowner can base his calculations. In an area the size of the Don Watershed a program of individual woodlot examination should not be too heavy a burden on the Conservation Authority.

Seventeen counties in all have passed by-laws under the Trees Conservation Act which empowers the council of a county to pass by-laws restricting and regulating the cutting of trees. In each case the by-law has fixed minimum diameter limits below which trees may not be cut except in special circumstances. The object of this is to prevent the cutting of trees at the time when they are putting on their greatest diameter growth. These limits are usually 5 or 6 inches for white cedar, red cedar and black locust, and range from 10 inches to 16 inches in the various counties for all other species. The limits which have been set are actually far too low for good forestry practice as most trees are making their maximum diameter growth after they reach 18 inches in diameter, but it is an elementary step in the right direction. Every county should have restrictions of this type and it is recommended that similar powers be extended to Conservation Authorities as a means of protecting existing woodland on their watersheds.

The counties with their diameter limits are listed below:



<u>County</u>	<u>Cedar</u>	<u>Others</u>	
Brant <sup>2</sup>	5	14	Stump 18"
Bruce <sup>2, 3, 4</sup>	6	12	Stump 18"
Dufferin <sup>5</sup>	5	12	
Durham <sup>6</sup>	5	10	
Elgin <sup>7</sup>	5	12	
Grey <sup>4</sup> (Keppel Township excluded)	6	12	
Halton <sup>2</sup>	7	14	Stump 18"
Huron <sup>1</sup>	5	12	
Lambton <sup>2</sup>	7	12	Stump 18"
Leeds and Grenville <sup>8</sup>	0	0	
Middlesex <sup>2</sup>	6	14	Stump 18"
Norfolk <sup>2</sup>	6	14	Stump 18"
Oxford <sup>1</sup>	5	12	
Perth <sup>1</sup>	5	16	
Waterloo <sup>1</sup>	5	14	
Wellington	5	12	
York <sup>2, 9</sup>	0	14	Stump 18"

1. Unless otherwise indicated limits are DBH, that is diameter breast high or  $4\frac{1}{2}$  feet above ground.
2. Brant, Bruce, Halton, Lambton, Middlesex, Norfolk and York limits are 18-inches above ground instead of  $4\frac{1}{2}$  feet.
3. Limits apply only in the south half of Bruce County.
4. Bruce and Grey also have an 8 inch limit for poplar and birch.
5. Dufferin has a 10-inch limit on basswood.
6. Durham also has a 5-inch limit for birch, black locust, black ash, soft maple, tamarack and willow.
7. Elgin has a 5-inch limit for black locust.
8. Leeds and Grenville have imposed no limit and the by-law is almost worthless from a forestry point of view.
9. York has no limit on poplar, Manitoba maple, black locust, tamarack, white birch and willow.

Setting the limit at stump height corresponds to a higher limit DBH and has the added advantage of being easier to check after the trees have been cut.





## 6. Forest Fire Protection in Southern Ontario

The task of protecting woodlands from fire in Southern Ontario presents a very different problem, or rather series of problems, from those of Northern Ontario, and consequently must be handled in a somewhat different manner. Though fire is not a serious question on the Don Watershed except on the moraine, particularly where the Township of Vaughan burns its garbage, it is a question to which some attention should be given,

Northern Ontario is predominantly forest land, the population is sparse, parties travelling through the forested areas are fairly readily accounted for by means of a permit system during the fire season, and watch is maintained for fire by means of look-out towers and air patrol.

In Southern Ontario south of the Laurentian Shield the land is normally potential agricultural land with the woodland surviving in isolated patches as farm woodlots or in larger more or less continuous blocks of swamp or sand up to ten thousand acres in extent. The population is, relatively speaking, fairly dense, no part of any woodland is more than two miles from the nearest human habitation, and most roads are travelled by a comparatively large number of people.

In spite of the publicity given to the damage caused by fire the average person does not realize how serious this is. Though he may know that young growth and small trees are burned by surface fires he does not realize the extent of the less obvious damage such as the destruction of humus which itself preserves the condition and water-retaining capacity of the soil. When the humus and ground cover are destroyed the sun and dry winds remove the moisture required for tree growth and plant nutrients are destroyed. The heat of the fire also injures the growing tissue inside the bark of older trees which are not actually burned, exposing the wood to attack by insects and fungi. Even though through time the wounds may be completely healed, the damage shows up as defects when the tree is cut for lumber.



Many farmers in Southern Ontario are so completely ignorant of, or indifferent to, the damaging effects of fire that they deliberately set fire in peat land to burn off the peat, starting fires which it is next to impossible to extinguish. Such fires burn for months, even under the snow, destroying many acres of woodland every year, not only on the land of the person setting the fire but frequently spreading over land adjacent to it.

The first step in fire control is fire prevention, and the best assurance of prevention is an enlightened public opinion which will make every member of the rural community conscious of the seriousness of fire damage and of his duty as a citizen to do all he can to prevent it. The farmer can prevent most fires in farm woodlots if he exercises the same care that he does around his home and buildings.

Experience in the United States has shown that the most effective fire protective systems in rural districts are those set up under a state organization with local wardens appointed by the state forester on the recommendation of the local town<sup>1</sup> councils. In the rural parts of the State of Maine each town appoints its own fire wardens who handle fire protection in the town quite independently of other towns. This means there is a lack of co-operation between towns, wardens receive little practical training, organization is loose, and as wardens hold office at the pleasure of the town council there is a serious lack of continuity in administration.

In New Hampshire and Vermont wardens are appointed by the state forester on the recommendation of the council and in Vermont they serve until they resign or are removed for cause by the state forester.

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1. The "town" in the eastern United States corresponds closely to the township in Canada.





Mr. H. H. Chapman, writing in the Journal of Forestry, states<sup>2</sup>: "It is not unreasonable to conclude that the ratio of 34 to 1 in damage per acre of woodland between these two states (Maine and New Hampshire) is the direct consequence of Maine's failure to depart from the 'fire bucket' principle of town organization".

From the evidence collected in the northern states of the United States, where conditions most nearly approximate those of rural Southern Ontario, it is apparent that the most effective fire protective systems are those set up under the following conditions:

- (1) Where the system is organized under the direction and control of the state forester and the wardens in each town are appointed by him on the recommendation of the local council.
- (2) Where wardens paid an annual retainer are actual residents in the locality. Usually they are farmers who have had practical instruction in fighting fire. They have the power to call out other local residents to help in fire fighting and maintain a store of fire-fighting tools on their premises.
- (3) Where the warden is assisted in his work by all members of the community. That is, his address and telephone number are known to everyone and fires are reported to him immediately.
- (4) Where designated members of the community know that they are likely to be called on to fight fire and are paid so much per hour for the time they are so employed.
- (5) Where every resident is thoroughly fire-conscious and realizes that loss of timber by fire is a loss to the whole community, and

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2. Journal of Forestry, Vol. 47, No. 2, 1949.



considers it his duty to prevent, report and fight fire.

- (6) Where fires for burning brush and rubbish may be set only after a permit has been obtained from the local firewarden,

## 7. Marketing Woodlot Products

Many wood-using industries operate in Southern Ontario. These include sawmills, pulp mills, veneer factories and furniture factories as well as others requiring special products. These industries use large supplies of lumber, most of which is brought in from Northern Ontario and the United States, smaller quantities being purchased from woodland areas throughout the agricultural areas in the Province. In purchasing these supplies no organized method of marketing is practised which, besides stabilizing prices for such products, could also serve as a clearing house for quantities and types of certain species. Almost everything the farmer sells is aided to some extent by a scheme of marketing, and woodlot products should not be an exception.

As a partial solution to the problem of marketing the products of farm woodlots in Ontario, it is recommended that the following steps be taken immediately:

- (1) That all sawmills, both permanent and portable, and irrespective of size, be registered and required to report their daily and annual cuts.
- (2) That lists be prepared of all wood-working industries which purchase woodlot products in Southern Ontario, including sawmills, pulp mills and veneer mills as well as agents handling piles, poles, posts and fuelwood; these lists to include the type of material purchased, whether logs, bolts or pieces, and the specifications for the same, including species, size, quality and grades.





- (3) That these lists be made available to farmers through the offices of the District and Zone Foresters.
- (4) That wherever possible current prices of the above-mentioned products be listed and that this information be available to the farmer on application to the District Forest Office.



## CHAPTER 6

### FOREST INSECTS AND DISEASES

#### 1. Forest Insects

In any project, such as that proposed for the Don Watershed, careful consideration should be given to the prevention of insect outbreaks and adequate arrangements made for the immediate application of control measures when these become necessary. While it is not possible to predict accurately the course insects may take under the ever-changing conditions of a newly forested area, there are a number of fundamental principles which, if applied, will greatly lessen their destructiveness.

It is important to avoid the planting of large areas of one kind of tree, otherwise conditions will be ideal for an outbreak of abnormal numbers of some insects which prefer the food afforded by that particular host. It is preferable to plant in blocks, the blocks distributed so that trees of one species are separated by blocks of different tree species. This tends to keep outbreaks localized until natural agencies bring them under control and facilitates direct control measures if such become necessary.

It is important to plant only the species of trees suitable to the site and existing growing conditions. Healthy, vigorous trees are certainly more resistant to insect attack than weak, struggling ones.

Over-mature and dead trees should be removed from the existing stands as these harbour bark-beetles and wood-boring insects, which may become excessively abundant and attack healthy adjacent trees.

Care should be exercised to prevent ground fires. Even light ground fires are frequently followed by severe outbreaks of bark-beetles and wood-boring insects.

Woodcutting operations, sawmill sites and wood storage yards should be carefully supervised or they may become reservoirs of infestations.





It is essential that surveys for insect conditions be made each year so that any abnormal increase in insect populations may be noted and control operations initiated before they develop to outbreak proportions. Serious and widespread outbreaks are frequently prevented by prompt and well-timed spraying operations over a comparatively small area. It is therefore necessary that spraying equipment be available and that laneways be maintained within the plantations for spraying purposes. Outbreaks of an extensive nature can generally be brought under effective control by strip spraying. In this method, alternate strips of trees in large plantations are sprayed, thus reducing the initial infestation and at the same time causing the native parasites to concentrate and build up in the unsprayed portions. This reduces spraying operations and the number of lanes for the passage of spraying equipment.

Owing to the danger of injury by the white pine weevil, white pine should not be planted in pure stands unless the stands are very densely stocked in a good site. It is better to grow white pine in mixture with some immune species such as the better hardwoods. The protecting species should be taller than the white pine, at least in the early years.

In conclusion, it should be recognized that protection against leaf-feeding insects is very desirable, since defoliation of a tree weakens it and thus makes it more susceptible to attack by bark-beetles and wood-boring insects as well as by organisms which do not usually attack healthy trees but which will hasten the death of weakened trees. Leaf-feeding insects alone may kill a thrifty, broad-leaved deciduous tree by completely defoliating it for three years in succession. Conifers, however, are usually killed as a result of one complete defoliation.



## 2. Tree Diseases

### (a) Introduction

Productive woodlands require protection against fire, trespass, grazing animals and rodents, insects and disease. Protection is a part of forest management, and under a policy of sustained yield will be maintained in continuity. Good forest management is reflected in the health of the woods and, conversely, damage on account of disease is often a sign of mismanagement or neglect. In general, an objective of maximum yield, with attendant intensive silviculture, is compatible with, and often facilitates, protection and disease control.

For the purpose of discussing their pathology and protection, the hardwoods may be considered separately from pine in natural stands or plantations. The chief diseases of the hardwoods are the various trunk, butt and root rots and chronic stem cankers, which are all endemic and may cause serious damage under aggravating conditions. Woodlots on the Don Watershed present very diverse conditions with respect to the incidence of these diseases, a circumstance which is usually related to their past history. Thus many containing old timber are in need of heavy preliminary salvage and sanitation cuttings, as a result of mismanagement or neglect. Such cuttings should precede or be combined with cleanings and improvement cuttings, designed to improve the composition and structure of the stands. Having established a sanitary condition, normal care should maintain it and obviate loss on account of decay.

The wood rots are commonly thought of as diseases of mature and over-mature timber, but experience has shown that infection may occur at a very early age. Thus in hardwood sprouts the stem may be infected from the parent stump. In older trees infection is chiefly through wounds, either of the root or trunks, which may be caused by fire, trampling by animals, insects, meteorological agencies, or by





carelessness or accident in felling and other woods operations.

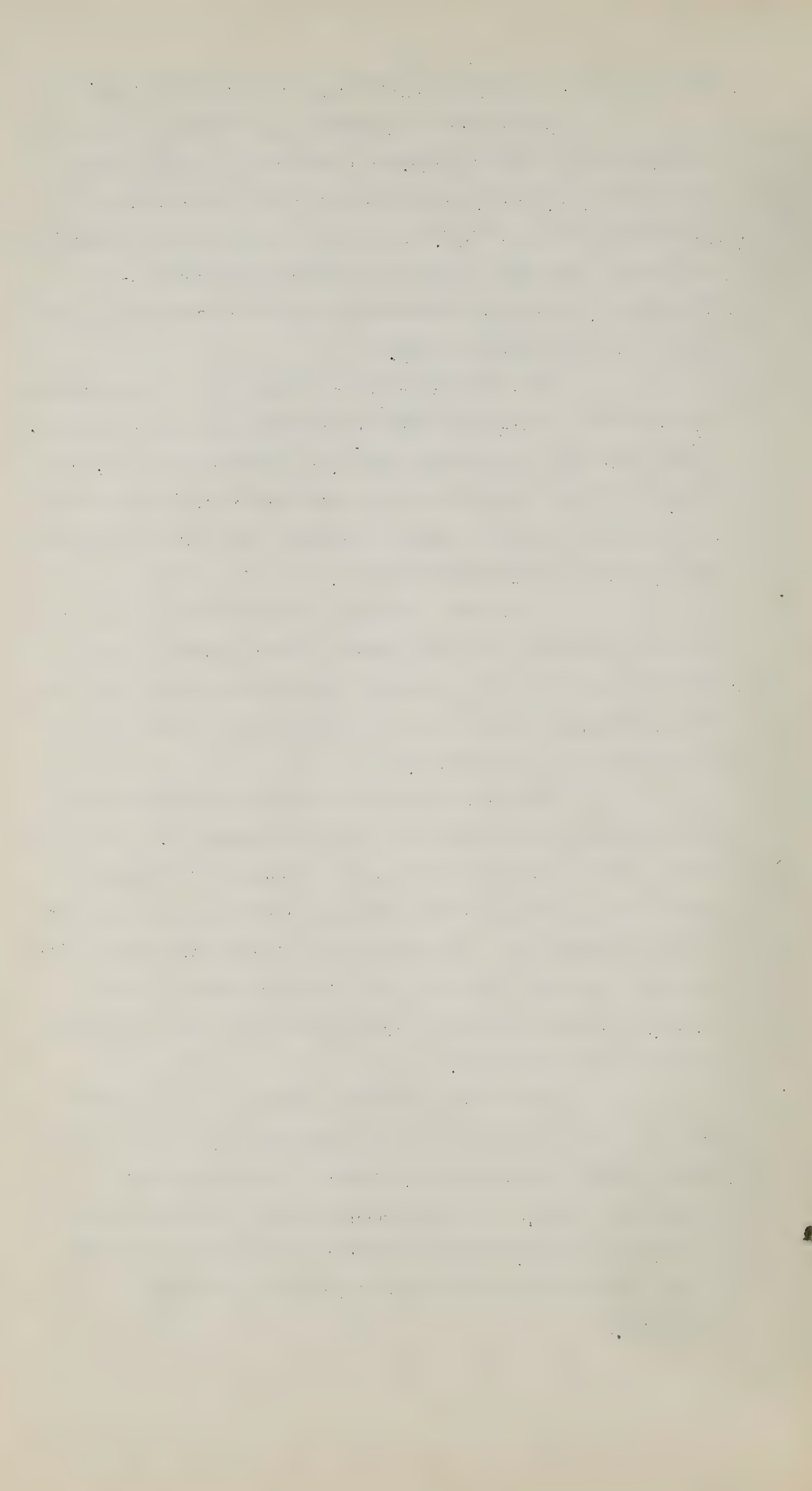
Hardwoods are commonly cut selectively and not infrequently in clear fellings. Few foresters will approve the latter system, which is in fact often intended as a liquidation of the property. A system based on yearly selection or frequent periodic return to conveniently planned subdivisions, has obvious advantages for small woods and is well adapted to the control of decay.

For many reasons "cleanings" in the reproduction are desirable, especially where the woods have been heavily cut. While favouring the valuable species, those sprouts which, on account of decay hazard, are of undesirable origin should be eliminated. Such will comprise sprouts from the larger stumps and those from above-ground position.

In harvest cuttings, which should recur at frequent intervals, the permissible volume allotted should include trees in which incipient decay is discovered and, so far as possible, those which have become a poor risk through injury or other circumstances.

White pine is found in young plantations and in natural stands almost pure, or mixed with hardwoods. From the latter stands it tends to disappear on account of hardwood competition, except on sites which are particularly favourable for its reproduction. The white pine blister rust, which, with the well known shoot weevil, is a principal enemy of the species, is a factor contributing towards the elimination of seedlings and young trees.

White pine should be encouraged on the sites which are naturally suited to its reproduction, so that fairly compact growth may be secured, thereby facilitating the protection problem. It is an important and valuable species in Southern Ontario, and its cultivation should be promoted by the institution of effective blister rust control facilities.



## CHAPTER 7

### LAND ACQUISITION

The problem of land acquisition in any part of agricultural Ontario, where practically all the land is privately owned, is one which requires careful approach. The ownership and use of land, especially for agricultural purposes, are considered by most citizens as two of their few remaining inalienable rights. However, where the good of the whole community is under consideration, such personal rights should be, and have been, overruled under the principle of eminent domain. Examples of such cases are the building of highways, the construction of power lines, and the acquiring of land for military purposes in the event of a national emergency.

In Southern Ontario compulsion has not been exercised to any great extent by the Government in planning proper land use schemes. But who would gainsay the fact that the acquiring of poor land on the Don Watershed for conservation purposes does not constitute an emergency, and therefore requires a more permanent authority than the individual to bring it back to its proper use?

However, in dealing with land acquisition it should not be the desire of any authority to approach the problem in a dictatorial manner. It will require careful handling, and as a preliminary step in such work the people of the area should be acquainted with the purpose of the scheme, its ultimate benefits to the community, and by explanation and demonstration be gradually brought to the point where they will be glad to co-operate.

The only part of the Don where large-scale transfers of property from private ownership to a forest authority would have to be made is in that area which is recommended as a source area.

#### 1. Methods of Acquiring Land

There are several ways in which land can be





acquired and controlled for conservation purposes, and it is proposed to enumerate and discuss these briefly in this section.

(a) Transfer by Private Sale:

The most satisfactory method of acquiring land is by private sale between the Conservation Authority concerned and the landowner. This method has been followed by the counties of Ontario in purchasing land for reforestation work in building up the system of county forests, which totals, in round figures, 75,000 acres. This method has its drawbacks, however, as individuals who have not the community's welfare at heart, or for one reason or another have an exaggerated idea of the value of their property, may block the completion of a unified area by refusing to sell. This was overcome in the State of New York, where over 450,000 acres of land have been purchased for reforestation, by refusing to buy individual parcels of land unless there was a sufficient number in a group to make a contiguous block of 500 acres.

(b) Maximum Price per Acre

Another method which has been used has been to fix a maximum price per acre for this class of land, beyond which the forest authority is prohibited to go; allowance is made for the presence of good fencing and buildings on the properties, which in some cases have been removed by the vendors and allowed as part payment for the land.

(c) Agreements

Where owners of property prefer to retain their woodlots, or where parts of farms fall within the forest area prescribed, and providing the retaining of ownership does not jeopardize the complete conservation scheme, agreements could be made for the control and management of such areas.

This method has been adopted by the Dominion Forest Service in Nova Scotia, where it has been desirable to control wooded areas for experimental and conservation schemes, and in this particular case the agreements cover a period of twenty years.



In Ontario there is one example, at least, where a municipality leased a part of a farm for reforestation work for fifty years, and one United Counties' council has adopted the plan of taking easements on land for the same purpose.

(d) Control by Existing Legislation

Under the authority of the Private Forest Reserves Act (R.S.O. 1937, Chapter 324), the Minister of Lands and Forests, on recommendation to the Lieutenant-Governor in Council, may, with the consent of the owner of any land covered with forest or suitable for reforestation, declare such an area to be a private forest reserve. When such an arrangement is made, the Minister or his representatives may reforest such areas, supervise the improving and cutting and prohibit the removal of trees by the owner without his consent. He may also prohibit the grazing of the area by cattle.

(e) Life Lease

Many of the farms on the proposed forest, as already mentioned, are of low agricultural worth and are supporting families at the present time. The problem in such cases is not so much the purchase of the property as what will become of the family after the farm is acquired. In almost every case it would be impossible for the vendor to purchase another farm with the money he receives, except one which is of approximately the same value, outside the forest. In some cases such farms are occupied by older people whose families have grown up and left the community. The removal of these from their properties might work undue hardship on them, and in fact in some cases they might become a burden on the municipality. With some of these the plan of giving the vendor a life lease would be sufficient. In most cases such old people make little attempt at farming the whole property, but require only sufficient pasture for a cow or two, enough land for a garden, the house and buildings and a supply of fuelwood.





The steep slopes of the Don Valley are the responsibility of private owners on a large number of properties. Many of them should be reforested to prevent erosion.



**Snow in Woods:** Snow is retained from ten to fourteen days longer in the woods than on open land, thus helping to reduce flood peaks and aiding penetration of water into the soil.



**No Snow In Open:** This photograph was taken within a quarter of a mile of the above and on the same day. Snow is not retained in the open nor in the grazed woodlot.







The plan of giving a life lease has been adopted in the case of two properties,<sup>1</sup> at least, on the county forests in Ontario, and has proved satisfactory to both contracting parties.

(f) Tax-Delinquent Land

Under the Statutes of the Province of Ontario<sup>2</sup>, land which becomes tax-delinquent is sold by the County Treasurer. In the case of a farm this is not done in practice until the land has been in default for three, or in some cases, four, years. Even then the owner has the privilege of redeeming his property within a year. Where such lands are marginal or submarginal they are sometimes bought for only a part of the area which is of special value, such as woodland, old buildings, or a good field or two. In some instances the poor land remains idle and frequently appears again at the tax sale. The fact that such land becomes tax-delinquent is an indication in many cases that its ultimate use is forestry. Under the present Statutes the municipalities are not permitted, at the first sale at least, to acquire or reserve such land for conservation purposes. Consequently this report recommends that the Authority expropriate all tax delinquent land subject to the regulations of the Municipal Act.

(g) Expropriation

As a last resort in land purchases, or where the owners of abandoned land cannot be located, such areas can be acquired by expropriation. The Conservation Authorities Act, 1946, Chapter 11, Section 13, states:

"For the purpose of carrying out a scheme an authority shall have power to purchase or acquire and without the consent of the owner enter upon, take and expropriate any land which it may require and sell or otherwise deal with such land or other property".

Also under the Forestry Act, (R.S.O. 1937, Chapter 39, Section 13) provision is made for the removal of settlers from lands unsuitable for farming. To quote:

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1. Northumberland Forest and Angus Forest.  
2. R.S.O. C.262, Sec. 148.





"Whenever in the opinion of the Minister, it is found that settlement has taken place on lands not suitable for agricultural purposes, and which said lands are required for forestry purposes, the Minister shall have power to make arrangements for the removal of such settlers upon such terms as may be agreed upon".

As a matter of general interest, it should be stated that this Act also provides for the power to close the roads on lands taken over for forestry purposes, the setting apart of lands for settlement, and the removing of settlers from lands unsuitable for farming. It should also include, however, provision for acquiring permanent or community pastures, and pondage areas where these are required, as an integral part of a large conservation project.

## 2. Cost of Land in the Proposed Don Forest

It would be impossible to give an accurate figure for the total purchase price of all land in the proposed forest without consulting the owners of the individual parcels. However, as an indication for arriving at the approximate cost, the amounts paid by the several counties and Conservation Authorities of the Province in purchasing land for their forests will serve as a guide.

In the following table a cross-section of land costs for some of the county and Authority forests will be found. Lanark County is not listed as the land for this was not purchased by private sale. Norfolk and Peterborough Counties, which have large acreages in their forests, do not come under the county forest agreement. It should be pointed out too that the acreage listed under each forest does not, in all cases, represent the total acreage of that forest to date, but only a part of it which was purchased by private sale. Of the remaining land making up the total acreage on some of the forests, some was tax-delinquent and was therefore purchased at a low figure, some was purchased from the Crown at a nominal sum, while of the remainder the particulars regarding



area, cost and nature of purchase have not yet been listed with the Department.

TABLE SHOWING COST OF LAND  
PURCHASED FOR FORESTS

Name of Forest	Owned By	Acres	Cost \$	Cost per Acre \$
Ganaraska	Ganaraska Authority	3,253	22,078.00	6.78
Thames	Thames Authority	1,705	7,546.00	4.42
Angus	Simcoe	991	5,639.75	5.69
Dufferin	Dufferin	1,077	7,945.32	7.37
Durham	Northumberland and Durham	1,074	9,561.00	8.90
Grey	Grey	463	2,896.00	6.25
Hendrie	Simcoe	2,250	13,921.00	6.18
Larose	Prescott and Russell	14,416	33,188.00	2.30
Limerick	Leeds and Grenville	1,789	5,367.00	3.00
Miller	Bruce	3,553	8,234.25	2.32
Lake				
Northumber-	Northumberland and Durham	960	5,920.00	6.16
land	Durham			
Orr Lake	Simcoe	2,319	14,589.25	6.29
Sauble	Bruce	1,484	4,177.94	2.81
Tosorontio	Simcoe	600	3,300.00	5.50
Uxbridge	Ontario	975	9,050.00	9.28
Victoria	Victoria	1,715	5,061.00	2.95
Vivian	York	1,174	19,516.00	16.62
Totals		39,798	177,990.51	
Average Cost per Acre				4.47

It should be pointed out too that land acquired in the future by the Ganaraska Authority is likely to cost more than the average price per acre of \$6.78 because most of the poorest denuded land has now been taken up and the remainder has more woodland and potential woodland which will naturally raise the purchase price. The very low cost of land in the Thames Watershed is explained by the fact that it is nearly all burned-over swamp land with a peat soil which is of no economic value at the present time. Actually the average price of \$4.42 per acre includes a ditch tax which existed as a lien against the property, so that the price of the land itself was closer to \$1.00 per acre. However, it is potential forest land having produced black spruce, tamarack and white pine in its original state and is also essential to the water conservation program.









## CHAPTER 1

### THE RIVER

#### 1. General

The earliest Indian names for the Don River are not certainly known and the French seem to have had no name for this stream. The Mississauga Indians, who inhabited the area at the time of settlement, had several names for most localities. The first recorded name for the Don is "Nechenquakekonk" or "Nechingquakekonk". Another name is said to have been "Wonscoteonach", meaning "back burnt lands", and there were possibly others in use as well. Fortunately these names were replaced in 1793 by "The River Don", given to it by Governor Simcoe after the River Don in Yorkshire, England.

The Don River drains 140 square miles north of Lake Ontario lying north of the City of Toronto and including a large part of the present city and its suburbs. The river consists of two main branches which, like most streams flowing from the morainic uplands north of Lake Ontario, tend to run to the south-east through much of their course. For the purposes of this report these streams are known as the East and West Branches of the Don River.

The East Branch has its source about three miles north-west of Richmond Hill in the rugged morainic area, crosses Yonge Street at Thornhill, and flows in the usual south-easterly direction to near Oriole Station. There it turns more to the south until it reaches the Forks of the Don, north-east of Todmorden, the confluence of the two main branches of the Don. The West Branch has its source almost at the small hamlet of Teston, three and three-quarters miles west of Yonge Street and two and one-half miles north-west of Maple. It flows almost parallel to the East Branch, crossing Yonge Street at right angles just north of the present city limits, and continues south-east to the Forks.

Below the Forks the Don runs westward for a time,





# DON RIVER AND MAIN TRIBUTARIES

SCALE : MILES





then turns south to Ashbridge's Bay. In the section below the Prince Edward Viaduct there have been many changes. The river originally wound through the flats from side to side of the valley and flowed through the marshes of Ashbridge's Bay, entering the harbour near Cherry and Carlton Streets. In 1804 a flood broke a channel westwards along the shore of Ashbridge's Bay to the harbour, near the foot of Trinity Street. This was at first shallow and often dry, but became in time the chief outlet of the Don. At the end of the last century this outlet and a stretch of the river above Queen Street were straightened and canalized. When the parts of the harbour and Ashbridge's Bay adjacent to Cherry Street were filled in after 1911, the outlet of the Don was established in its present position and the old ones were filled up.

Until 1853 the waters of the Don found their way into the open lake through the Western Gap. In a sense the whole of Toronto Harbour might then be considered as the "estuary" of the Don and the streams flowing into it as tributaries. The easternmost of these creeks<sup>1</sup>, Taddle's Creek or the Taddle, had its outlet to the bay near the foot of Parliament Street, not very far from the mouth of the Don. Its source was above Davenport Road and west of Bathurst Street. The drainage area of the Taddle borders that of the Don on the south and south-west and considerably reduces the extent of the Don Watershed in that quarter, so that all the oldest part of Toronto, south of Queen Street, lies outside the watershed. However, a considerable area west of Queen's Park, between Bloor and Queen Streets, was drained by two small watercourses which rose in the park and ran south-east and south, flowing into the Don near the Queen Street Bridge. The Taddle and these watercourses have flowed underground for many years. The

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1. There were at least six or seven of these little streams between the Don and Dufferin Street. Garrison Creek, Russell's Creek and "the Town Creek" or Taddle were the only considerable ones.





small valleys and hollows formed by them can only be traced in a few places; in others the levelling of streets and building sites has completely obliterated them. The divide separating the two drainage areas was always very low and is now hardly perceptible. Without the help of old maps and a careful examination of the ground it is difficult to reconstruct this part of the Don Watershed.

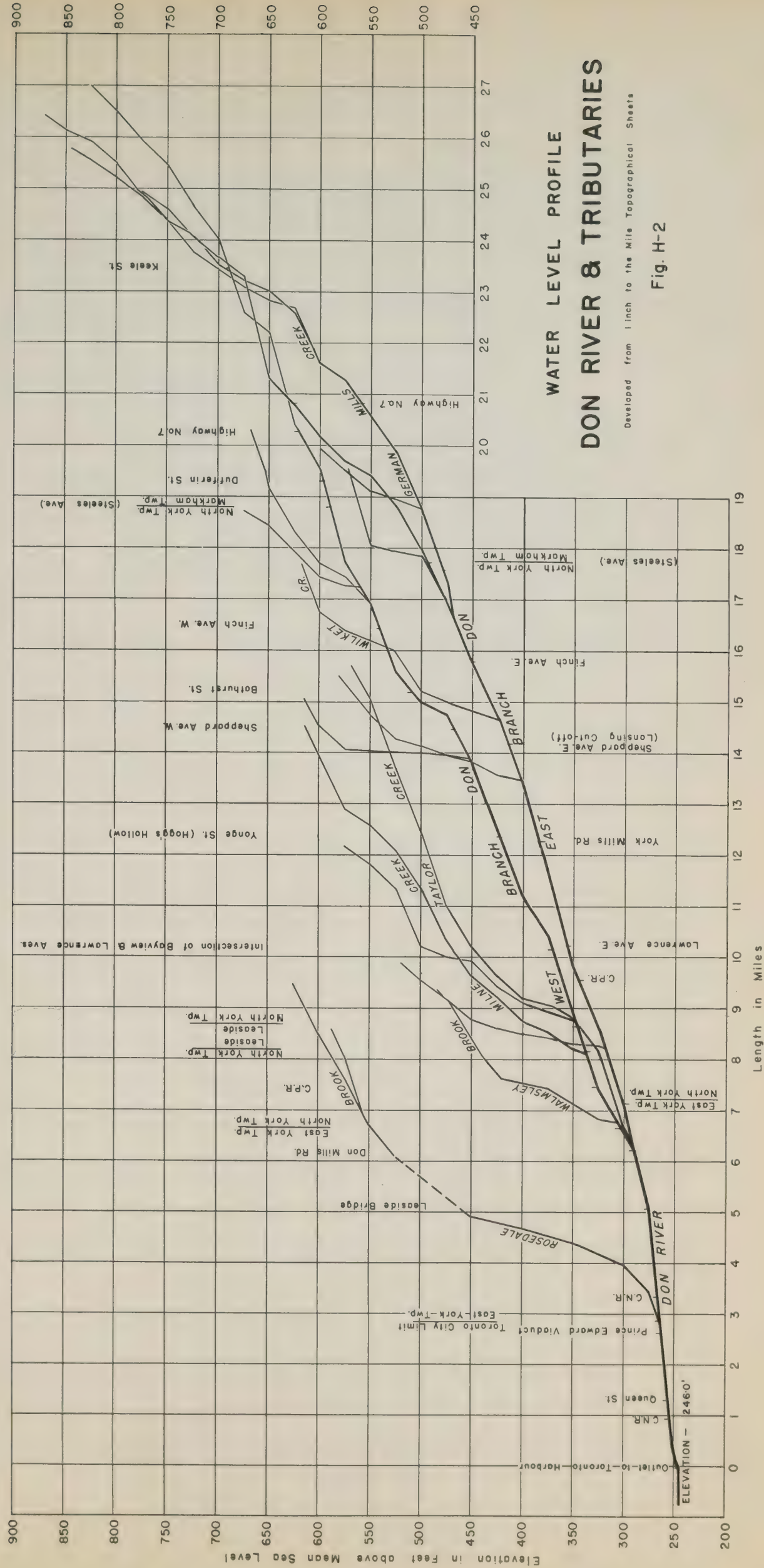
The Don has many other small tributaries. Most of these flow into the river from the north-west, like those just described, so that their valleys cut across the lines of the roads and streets. In particular, three tributaries rising near Dufferin Street and north of Eglinton Avenue flow through especially deep ravines and join the main river below the Forks. Only two streams of any length enter the river from the east. These are German Mills Creek and Taylor Creek. Taylor Creek (formerly called the East Branch of the Don) rises in Concession II of Scarborough Township near Dawes Road and flows parallel to the East Branch, swinging west to join the river at the source. German Mills Creek flows roughly parallel to the East Branch, from its source near Elgin Mills to its junction with that branch below Steele's Avenue East, west of Leslie Street.

The upper seven miles of the East Branch has a heavy gradient averaging about 46 feet to the mile, and for the rest of its course to the Forks a gradient of about 20 feet to the mile. Its drainage area above the Forks, including that of Taylor Creek, is about 73 square miles.

The West Branch, through its length of about 21 miles to the Forks, has a gradient of about 26 feet to the mile and a drainage area of nearly 49 square miles.

The lateral slopes are heavy over the whole watershed, increasing from the south to the north, where in the rugged headwater area above Richmond Hill they range from 70 to as much as 200 feet to the mile. In the remaining area to the lake the slopes range from 25 to 150 feet and, in isolated









cases, as much as 250 feet to the mile.

These heavy slopes, together with the fact that there are no lakes or swamps of any significance to impound run-off, or forest cover to induce deep seepage, result in a high rate of run-off during spring freshets and summer storms, followed by an extremely low flow in the river during periods of drought.

## 2. Former Floods

There can be little doubt that the Don, like all the rivers and creeks of Southern Ontario, has risen in flood under certain climatic conditions throughout its history as a river. To the early inhabitants of the region the spring and autumn freshets were an inevitable phenomenon and brought with them advantages as well as inconveniences. The yearly enrichment of the meadows or "flats" made it possible to grow corn on them year after year, so that the Indian villages near the river could remain on the same site for long periods, instead of having to be shifted at short intervals when the fields around them became exhausted. The muddy flood waters might sometimes spoil the salmon fishing, and the freshets would make the fords impassable without a canoe, but the high water enabled a skilled traveller to navigate many parts of the river which at ordinary times were too shallow to be worth attempting. The "flash" floods which occurred in summer and early fall were another matter. This type of flood was possibly less frequent and less severe before the forests had been cleared on most of the watershed. However, such sudden spates did occur in early days, destroying the crops of corn on the flats and sometimes endangering the lives of the Indians in their encampments.

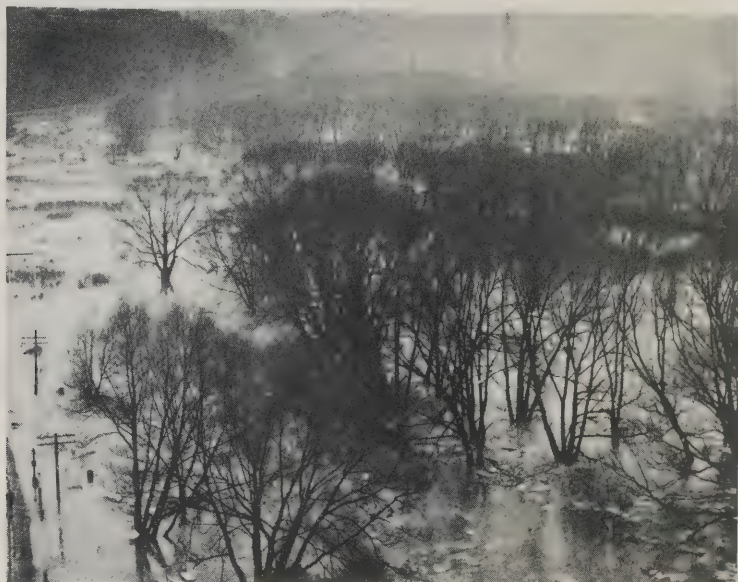
The salmon fishing season of 1801 was a failure in the neighbourhood of York. There was a shortage of this important article of food in the market and this was at first believed to be due to excessive export. An official investigation revealed that the Indians had been unable to spear salmon







Castle Frank Ridge from the  
east bank — 1950.



Flooding on the Don Flats  
— looking north from Bloor  
Street Viaduct — 1948.



Lower part of the Don,  
looking towards Gerrard  
Street Bridge.



Don Valley from the east  
bank, looking towards the  
Second Rosedale Ravine.





that spring because the rivers were so muddied "by the great floods" that they could not see the fish. This refers more particularly to the Credit, Etobicoke and Humber, but we know that the salmon fisheries on the Don were still important and it seems likely that conditions there were the same as on the other streams. An unusual flood on the Don in 1801 may therefore be taken as the first on record.

In September, 1804, there was another severe freshet on the Don and Humber. This is the first of the floods on the Don to be reported in a newspaper. It is also the first of a number of reports of autumn floods caused by heavy rains and doing even more damage than the spring freshets. The report refers to the Credit and the Humber as well as to the Don, but as the passage is interesting in itself it is quoted in full.

Upper Canada Gazette: The Oracle:  
September 15, 1804:

"We understand that the late heavy rains have done material damage to the roads in different parts of the country in so much as to render them in some places totally impassable by sweeping away the causeways and bridges. At the Credit the water suddenly rose to such a height as entirely to overflow the ground occupied by the Indians as an encampment, for the purpose of fishing; carrying away all before it. The Indians in the greatest consternation narrowly escaped in the night with their lives after having lost their canoes, arms and other property.

"Considerable damage has also been sustained by individuals in many places, in loss of corn, hay, etc., and particularly at and near the River Don in the breaking of mill dams. We are informed that the Humber mills are entirely destroyed"<sup>1</sup>.

This flood broke through the sand bar separating Ashbridge's Bay from Toronto Harbour, forming the channel near the site of Fleet Street already described. This channel was too shallow to be used by boats without improvement. A letter in the York Gazette of July 4th, 1807, refers to the "break

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1.

This information was found to be incorrect, and was contradicted in a subsequent issue, September 22nd, 1804.



which took place three years ago" and suggests deepening it, so as to shorten the navigation of the Don. This was not done until many years later and the break is sometimes shown on the maps and sometimes omitted. It would appear that, like the similar flood channel at the mouth of the Etobicoke, this "mouth" of the Don was sometimes filled up, or at least dry, and then re-opened by a subsequent flood.

On July 20th, 1808, Parshall Terry, the owner of mills on the Don, was drowned while crossing the river on horseback. The account of his death in the York Gazette contains the following passage:

"The particular situation of the road near the Don Bridge, calls imperiously upon the commissioners appointed by His Excellency for the particular care of the roads and employing the voted money for immediate repairs, as many lives are seriously threatened with danger by its present state, in consequence of the causeway being removed by an extensive flood".

From this it would appear that the approaches of the bridge had been washed out. Whether this resulted from a "flash" flood in June or July or from the spring freshet cannot be decided without further evidence<sup>1</sup>.

No direct or detailed references to floods on the Don have been found between 1808 and 1850. Extensive research would certainly produce some from correspondence or diaries. Floods occurred in Upper Canada in 1812 and 1813. There was a series of dry years between 1819 and 1825, and this no doubt limited the amount of flooding. The "History of York County" (1885), notes that Stillwell Wilson's sawmill on the East Branch<sup>2</sup> near Oriole was destroyed by a flood in 1828. The dam is said

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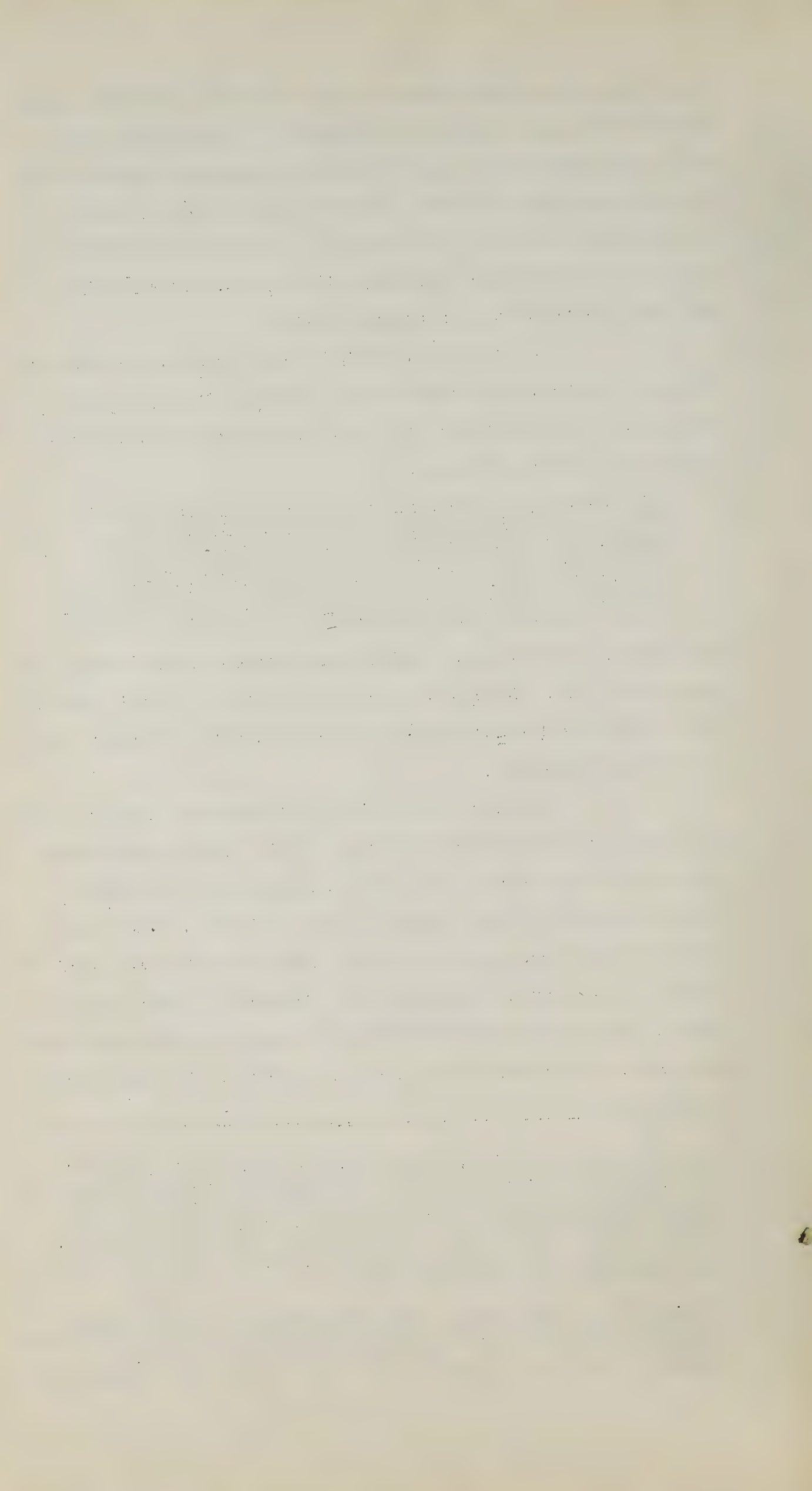
1.

A much later account of Perry's death, published in Robertson's "Land Marks of Toronto", says that he was attempting to swim his horse across the river, but the Gazette says "his death was occasioned by his getting into the river on horseback". This reads as if the bridge was still standing, but difficult to cross safely. The commissioners had been appointed and the money voted in 1806.

2.

Captail Basil Hall had to cross the Rouge by an improvised ferry in 1829 because the bridge was broken. It may have been damaged in 1828 or the date in the History of York may be wrong. There is a misprint in a date in the same paragraph.





to have been burst by a "water spout" or "cloud burst". A saw-mill on German Mills Creek above German Mills is reported by the same authority to have been destroyed in 1835 and not rebuilt. It is not likely that this freshet was limited to this tributary.

The two references indicate clearly that floods were occurring during the years when newspaper references are lacking. This gap in the sources is due to a change in the character of the newspapers. Before 1820 the Gazette was glad to supplement the foreign and provincial news, which reached it at long intervals, by items of local interest. After 1820 the quantity of outside news available steadily increased, as did the interest in provincial politics. The newspapers had also more freedom to print whatever they wished. The size of the papers was not much increased, but the volume of news to be printed was much greater. Local items, which could be circulated by word of mouth, were neglected. After 1840 the size of the newspapers gradually increased and daily papers began to replace the weekly or bi-weekly issues. From 1850 reports of floods are found very regularly, especially at the time of the spring break-up.

In 1850, the neighbourhood of Toronto was visited by "the most disastrous freshet that was ever known in the vicinity". Little of the accumulated ice and snow of the winter had melted when, on April 3rd, a heavy rain began to fall which continued through the night and during the greater part of the 4th. The combined effects of rain and thaw swelled the streams "to an immense extent", and caused enormous damage. By Saturday, April 6th, when according to the "Globe" "we have no accounts from distant places, so many of the bridges having been carried away", the known losses were greatest on the River Don and its branches. At Thornhill on the East Branch a section of Yonge Street one hundred feet long was washed out, the mill-dam was destroyed, the mill and the tannery were badly



damaged, and five horses and two fat cattle, together with their stable, were carried away downstream and lost. East of Yonge Street the mill of Mr. John Brunskill was damaged and his mill-dam was destroyed. "Seven dams, besides these we have mentioned, within three miles of Thornhill, have been carried away, but we have no particulars of the loss".

In Hogg's Hollow the West Branch swept away the approaches to the Yonge Street bridge, though the bridge itself was left intact. This whole valley was turned into a huge lake and many houses were flooded. The mill at this point was much injured, but the dam was not damaged. Another branch of the Don, which crosses Yonge Street "about three miles up" (Mount Pleasant Creek), was very much swollen; and it was here that one George Atkinson, in trying to cross the stream on a log, fell in and was drowned. Castle Frank Brook "was so much swollen as to twist a factory completely round, which stands a little west of the street"<sup>1</sup>.

"But it is at the lower part of the Don on the main stream that the freshet has done most damage. The heaviest sufferers here have been Messrs. Taylor, whose paper and sawmills are situated about five miles up the river, as well as their large farm steading. The whole of their farm of 600 acres on the flats has been laid under water. Their fences, hay stacks, and cordwood are swept off, - the mill-dam and three large bridges on their own property are gone, and the mills very much injured. Thirty persons employed in the establishment, were for some time cooped up in one of the houses, expecting every moment that it would be carried away. A raft was made, there being no boats, to bring them to terra firma, but it was upset, and five men thrown into the current. They were all ultimately got out in safety. Further down the stream, about three miles from town, is the paper mills of Messrs. Eastwood, and the flouring mills of Mr. Helliwell. The dam was only partially destroyed, and the mills escaped without much injury. The whole of the flats of the Don, to the west and northwest (sic) of the city, were submerged; the bridge of the plank road leading to Helliwell's, which runs near the new cemetery, gave way and was carried down the stream, together with lumber and trees, and driven with great force against the Don bridge proper, at the east end of

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1.

A woollen factory, built about twenty years earlier by Rowland Burr and not in use in 1850.





the city, on the Kingston road; about nine o'clock on Thursday morning, it too gave way, and was swept off by the stream. The river was very much swollen at this point, - the neighbouring buildings were flooded, and were even in danger of being carried away". (Globe, April 6th, 1850).

The Taylor paper mill and sawmill were on the West Branch, a little above the Forks, where remains of a later dam and foundations of buildings can still be traced. Their farm included the flats on the main river near the existing paper mill and above it almost to the Forks. It seems likely that the "600 acres" refers to the whole farm rather than the part flooded, but this must have amounted to about 200 acres<sup>1</sup> at least.

Farther downstream the dam below Todmorden was broken, the bridge on the plank road (Royal Drive) was carried away and all the Riverdale flats were under water. The debris wrecked the "Don bridge proper" on Queen Street East. It was carried away, and some buildings near it were flooded and in danger of being wrecked.

The small streams also caused trouble in the city; among them the little tributary of the Don which crossed Yonge Street "near the property of the late Alexander Wood", that is a little above Alexander Street. A blocked culvert diverted this stream down the Yonge Street ditch and it washed out a large part of the road before finding an outlet in a drain<sup>2</sup>.

For the next six years, reports of floods in the vicinity of the Don River are scanty or wholly lacking. If there were freshets during these years they apparently did not reach serious proportions or cause serious damage. The spring freshet that occurred in February, 1857, caused widespread

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1.

The Taylor's owned much more than 600 acres near the Forks, but there are certainly not 600 acres of flats on this part of the river and Browne's map of 1851 shows part of the clearing on higher ground.

2.

This is the last or nearly the last reference to this part of the little creek. It may have been diverted into a sewer soon after its costly "escapade" of 1850.



damage throughout Canada West. The "Globe" reported on February 17th:

"Much damage has arisen from the thaw which set in during the last three days. The mild, spring-like weather prevailing towards the close of last week was succeeded on Saturday night (14th) by a heavy fall of rain; and on Sunday morning (15th) a thick fog enveloped the city and smart showers of rain fell at intervals".

On the Don the waters continued to rise, at least until "a late hour last night (16th)". By that time a frame building near the Don bridge had been badly flooded, and ice jams had formed above the Kingston Road bridge that threatened that structure with destruction or serious damage.

There is no mention in this report of the mills and dams along the upper reaches of the Don or to other damage outside the city limits. The little creek which flooded in 1850 again did damage - this time in its lower part, where it crossed Beverley Street above Queen Street. Cellars of stores were flooded as far as Queen Street.

The freshet of March 18th, 1859, was evidently serious, but the first report was incomplete and the Globe did not think it worth while to give details later. "All along Yonge Street the houses ..... in the hollows and ravines were flooded more or less." The little streams crossing Yonge Street rose about four feet and one of them washed out a gap of 50 feet wide and 25 feet deep "about half a mile below the 'Prospect Hotel' (Montgomery's)".

The new bridge at "South Park Street" (Eastern Avenue) had one pier shifted several feet. The Don at this point was 200 yards wide and 25 to 27 feet deep. Wreckage washed up at the Queen Street Bridge suggested damage to buildings upstream and Taylor's mill dam was reported to have suffered.

During the 1860's and 1870's floods on the Don and Humber attracted little attention in Toronto. Floods on other rivers were reported in most years during these decades





and it is known from various casual references that quite heavy freshets were doing damage near Toronto at this time. In 1878 it is stated that "nearly every spring there have been freshets on the Don and the bridges carried away or damaged". However, a report of only one flood between 1859 and 1878 has so far been found.

The freshet of 1865 seems to have been less serious than some which preceded and followed it. On March 20th the water was level with one of the bridges and some roads were flooded. It was remarked that the freshet was not so high as had been expected and there had been a fall in the flood on the 19th. Three days later, however, there was still anxiety for the bridges. "The Necropolis Road" was jammed up with floating ice and there had been a rumour that the Queen Street bridge had been swept away. This proved false; both this bridge and that on "the Don and Danforth Road" (Gerrard Street East) were considered safe for the present. More ice was expected from near Taylor's mill (Don Mills) and a good deal of cordwood and "loose stuff" was coming down and being gleefully salvaged by the dwellers in "Cabbage Town" and near the Don Bridge.

In other parts of the Province, during the next few years, floods occurred in April, 1866; February, 1867; March, 1868; April, 1869; April, 1870; December, 1873; January and March, 1874; March and April, 1878. Some of these probably affected the Don River, but if so, the fact is not reported in the Toronto newspapers. The Globe of February 25th, 1878, reports a freshet on the Don that "subsided without doing any great damage to the bridges", although it formed an ice jam above the Queen Street bridge that attracted a huge crowd of spectators "to witness the unusual scene".

All the floods hitherto referred to are made to appear trifling by the accounts of the "Great Flood" of September 13th, 1878. According to the Globe:



" ..... never before in the history of Toronto has the Don presented such an appearance as it did yesterday, and at no previous time have its waters occasioned so much damage ..... Those residing or having places of business on or near the river's bank were not prepared for such a disaster as befell them. They could not well anticipate such a flood, for they had no precedent to guide them. They have had freshets in time past, but nothing to compare with that of yesterday".

Not only was the storm extensive in its area, but the rainfall was almost unprecedented. From Tuesday evening, the 10th, until noon of Friday, the 13th, no less than five inches of rain fell in the vicinity of Toronto. Similar downpours were reported from Port Stanley and Port Dover, "with rain still falling". Thus filled to overflowing, the Don raced down its course, carrying destruction wherever it went and causing the death of at least three persons. All the road bridges in the neighbourhood of Toronto were carried away except that on South Park Street, which was saved by the washing away of both approaches and which stood like an island in the immense flood that had carved deep gullies around it. The destruction of the Queen Street bridge<sup>1</sup> was most spectacular. This bridge "held out bravely till half-past three o'clock, (September 13th) .... The climax was brought about when Messrs. McColl's warehouse, in which there were a number of barrels of oil, was swept down. It came with great speed, and being of itself heavy, it set the thousands of tons of material already accumulated in motion, and this pressing on the bridge, proved its destruction. Slowly at first the bridge yielded to the pressure, but as the supports gave way the structure attained a speedier motion, until getting free from the retaining timber, it swept down the river with irresistible force, carrying everything before it."

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1.

For the sake of clearness this bridge is called the "Queen Street" bridge since Queen Street now extends on both sides of it. At this time the road east of the bridge was still "the Kingston Road" and the bridge is referred to in the reports as the "King Street" bridge. King Street joins Queen at the west end of the bridge, but never extended beyond it. The bridge was of the "tubular" wooden truss construction used in covered bridges. The sides of the bridge were boarded over at one time, but it was not roofed.





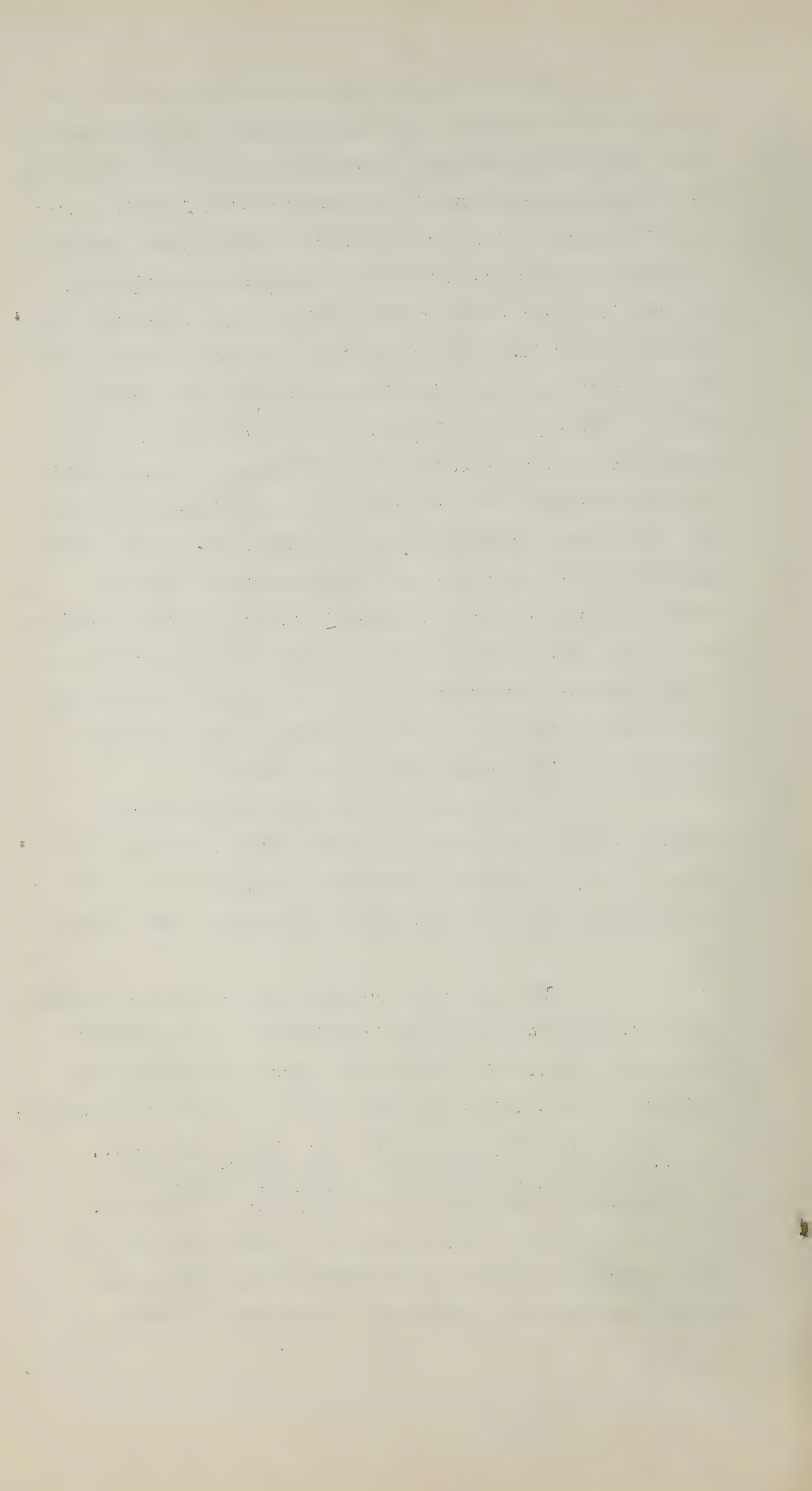
With the loss of the Queen Street bridge, the only link between Toronto and the east bank of the Don was the Grand Trunk Railway bridge, a structure of heavy iron and stone that successfully withstood the pressure of the flood. Water over the tracks in the various yards brought railway traffic to a standstill, but later hundreds of pedestrians found their way over the river by the railway bridge. Some, however, preferred to spend the night in the city. Traffic on other roads into the city was also interrupted by washouts and broken bridges. The bridge at Thornhill was the first to go and others followed, both on the Don and Humber. A washout north of Concord stopped the south-bound train on the Northern Railway. Some eager passengers tried to borrow hand cars, which might be able to pass over the weakened track. This was refused and they set out to walk to Toronto. At Davenport they met a train going north and were by then quite ready to board it and go back to the break in the line, rather than complete their walk to Toronto. The train picked up the remaining passengers and then backed down to the city.

It was election time and many people were anxious to reach home before the polls closed. The time for voting had to be extended for several days, for most of the rivers flowing into Lake Ontario had flooded as badly as the Don.

The Globe took advantage of the disaster to urge the authorities to replace the lost bridges by "permanent" structures; and also to condemn the Grand Trunk bridge for having too little under-span accommodation for the flood waters:

"It has only two spans where there should be four...  
... If this is really one of the principal causes of this ever-recurring difficulty, the present occasion offers a good opportunity for its removal".

Three days later, on the 16th, the Globe was able to form an estimate of the damage caused, the amount being "from \$200,000 to \$400,000". The losses included the



destruction of 30 dams<sup>1</sup> and 20 bridges. Another record had been set up; and for the next twenty years it was the custom of reporters to compare their latest freshets with the "Great Flood of '78".

It might be expected that such a flood as that of September, 1878, would rouse the people of Toronto to an interest in floods. The next three years, however, produced very few floods in Ontario and when a new series began in 1881 milling on the Don was beginning to decline. The bridges had been rebuilt on a larger scale and the floods did less serious damage. There are few reports of flooding near Toronto during the 1880's and 1890's. The freshet of 1881 is the only one of which a report has been found. It was not serious and it seems curious that no floods are mentioned in 1883, 1885, 1886, 1893 and 1898 - all bad flood years in Ontario.

By 1885 most of the sawmills on the Don had disappeared and some grist mills had been converted to steam power. A number still retained their mill dams, but it is possible that a more intelligent practice of opening the flood gates in advance of the freshet was now the rule. Flooding of low ground was of little interest, for even today there are few houses on the Don flats. Road travel was now concentrated on roads leading to railway stations. Grain growing on the flats had given place to pasture and there was little to excite interest except ice jams near the mouth of the river.

In 1881 there was flooding on March 21st, but the heavy freshet on both branches came on the following day. The dam at Milne's Mills on Lawrence Avenue was washed out, the bridge at Don Mills carried away, some private bridges belonging to Messrs. Taylor damaged and the upper paper mill flooded. The Riverdale flats were overflowed and some damage done in the brick yards and to boathouses and shanties from Gerrard Street down to the bay.

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<sup>1</sup>. Several of the damaged mills were not rebuilt.





The effect of these floods is fairly told in the words of the Mail and Empire, March 1st, 1902:

"The murky Don went on its usual spring rampage yesterday, and caused considerable excitement, but no serious damage".

On this occasion large stretches of flats were submerged, cellars of low-lying buildings were filled with water, bridges were threatened, a few yards of roadway were washed out and the railway lines blocked for a few hours. The lower part of the Zoo was deeply flooded and one of the keepers got a ducking while trying to move a family of frightened moose. According to the Mail and Empire account, the ice jams that formed on the Don in 1902 were removed by men of the City Engineer's department "who blew up the ice with dynamite, and by four o'clock" (afternoon of February 28th) "the waters had receded, leaving immense blocks of ice, weighing hundreds of pounds, piled on the railway tracks and surrounding ground". The Don attracted no further notice until 1912.

On April 6th, 1912, the Mail and Empire refers to the condition of the Don as "a rampage which baffles the memory of the 'oldest inhabitant' in the Valley and threatens serious consequences if the flood does not subside today". The recital of the details of damage done by this flood seems much tamer than the story of the Great Flood of '78, which the "oldest inhabitant" ought to have remembered. Only six dams were burst, no bridges were damaged, and "no important destruction of property has been reported". The Don was no tamer, but his neighbours were grown more wary and had learned to keep their property at a safe distance. An unusual feature of this freshet of 1912 is that it appears to have been produced wholly by the melting of snow and ice; there is no mention of rain in the reports until three days after severe flooding had occurred.



THE RELATION OF WEATHER TO FLOODING AT TORONTO, APRIL, 1912

Date	Total Precipitation (Inches)	Maximum Temperature (° Fahrenheit)	Flooding
Mon. 1st	rain 0.07 ) snow 1.5 ) .22	34	nil
Tue. 2nd	nil	34	nil
Wed. 3rd	nil	32	nil
Thu. 4th	nil	41	nil
Fri. 5th	nil	61	severe
Sat. 6th	nil	63	"still high"
Sun. 7th	rain .44 ) snow trace ) .44	49	severe

- NOTES: (1) Precipitation data, and the maximum temperature for April 8th, from the Toronto Meteorological Observatory; other temperatures and the information regarding flooding from the Toronto Globe.
- (2) Globe:  
April 8th, 1912, page 1, column 1:- "Two days of warm sunshine was the cause of the trouble".

About the time of the First World War there was a marked increase in the public interest in floods in Ontario. This was certainly connected with the revival of road travel brought about by the growth of motor traffic. This had less effect in the Don Watershed than in other parts of the Toronto area. The suburbs east and north of the city were growing rapidly, but there was little invasion of the flood plain by residential subdivisions and, though for a short time some of the smaller bridges were used as short cuts by motorists, it was not long before all the new built-up areas could be reached by bridges well above flood level. However, the Don floods were reported with the rest, the emphasis now being on the interruption of traffic on the new Canadian Northern Railway

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1.  
1.5 inches of snow equals .15 inches of rain.





line down the valley, on flooding of factories and other buildings below Gerrard Street and on the spectacular ice jams and the dynamiting used to break them.

Floods of some height are reported in 1914, 1918, 1920 and 1927. The details vary very little. In 1920 the C.P.R. train from Montreal was stalled by the flood and two engines needed to bring it into the station (March 12th). The line down the valley was then closed for some hours and the Canadian Northern had also to use the Grand Trunk tracks, as their own were flooded. The flood put the city incinerator out of action and also the kilns of the Don Valley Brick Works. In 1927 a temporary railway bridge, in use during the construction of the Leaside Viaduct, was washed away. One of the workmen was drowned while attempts to save it were still being made.

Less serious flooding occurred in 1928 and 1930. In 1936 an elderly couple had to be rescued by lifeguards using a lifeboat, and damage to the extent of \$1,000 or more was done in the Don Valley Paper Mills. Some other houses north of the Bloor Street Viaduct were also flooded. This was said to be the worst flood in more than 20 years. In all these years dynamite was used to break up ice jams. In 1939 the ice was jammed from the ship canal to Don Station without causing any flooding on the flats.

Reports of actual damage have been less common since 1940, but flooding of the low ground has occurred several times. In 1942 the river overflowed the Riverdale flats in a spectacular manner. A few houses higher up were flooded, the whole park was under water and railway traffic had to be suspended for a time. A similar situation occurred in 1948. Apart from the flooding of the flats below the Forks the chief inconvenience caused by recent floods has arisen from the flooding of short stretches of Yonge Street near Thornhill and Langstaff, such as was reported in 1943 and 1950. Similar



flooding also occurred on No. 7 Highway, both east and west of Thornhill.

Floods on the Don were seldom complicated by ice jams, though the firm ice in the Bay sometimes increased the extent of the flood below Queen Street. The floods were sudden spates, usually taking place at the spring break-up, but often at other seasons. While the flats were used for growing crops, these "summer floods" were the most damaging. Otherwise the millers were the chief sufferers. Damage by flood is, however, an unavoidable risk when water-power is used for industry. Heavy damage to roads and bridges was another feature of the Don floods up to about 1890. This caused a great deal of inconvenience by interruption of traffic, as well as being a constant expense to the municipalities. The straight line of Yonge Street, cutting across the various valleys of the Don, increased the extent of this type of damage. As time passed and the region developed there was a constant tendency to raise the level of the roads, due to a desire to avoid steep grades rather than to the danger of flood damage. This began with the grading of Yonge Street in 1835 and continued through the last century until the building of the Rose-dale bridges introduced the practice of carrying main roads across the Don ravines on high-level viaducts. This practice has been constantly extended and floods on the Don can now hardly interrupt road traffic below Thornhill.

The characteristic form of these ravines helped to prevent the growth of villages near the mills, such as are often found on other rivers. The grades down to the river were so steep that no one who could avoid it placed his home at the bottom. The small groups of workmen's cottages which did grow up in a few cases have almost all disappeared and, generally speaking, the steep sides of these valleys have discouraged the use of the flood plain for subdivision. Much of the Don Valley and the tributary ravines are still practically free from





buildings. Chance conditions have favoured this voluntary restriction, as for example the fact that the City happened to buy the remaining portion of the Scadding lot as a site for a gaol and industrial farm. This made it possible eventually to make the Riverdale Flats a public park. If the policy of the "Inner Green Belt" is carried out in full, there will be little chance of future encroachment below Lansing. This is fortunate for there is no guarantee that parts of the flood plain may not again be overflowed as Hogg's Hollow was in 1850. Hogg's Hollow is an exception to the rule that mill villages in the Don Valley have not proved lasting. Little remains of the village near the mills, but an attractive residential area has grown up on the low ground to the east. It is not certain whether this area was part of the "lake" formed in April, 1850, but if such conditions should recur the loss would certainly be much heavier and the surprise of the property owners much greater. Apparently the river has deepened its bed in this section during the past hundred years, for no flooding of houses has occurred here since the ground was subdivided, though bank erosion is often troublesome.

On the whole the floods of the Don now do only a small amount of damage compared to those before 1880 and there seems little likelihood that the amount will increase. Flooding is not a very serious problem on the Don and does not call for costly measures of control. It is now chiefly a nuisance in some areas, though seventy-five years ago it was still a serious and costly menace.



## CHAPTER 2

### GENERAL HYDRAULIC PROBLEMS

Hydraulics as applied to conservation deals with the measurement and control of run-off from river drainage basins. Measurement has to do with such factors as precipitation - both rain and snow - the topography and vegetative covering of the area and the daily gauging of the flow of the river at selected points. Control deals with the prevention of floods by the use of reservoirs and other structures, and the increase of summer flow.

Floods which are caused by the natural run-off from river basins have occurred from time to time in Southern Ontario ever since records were first kept. Evidence of these can be found in diaries going back well over 150 years and from newspaper records for at least 100 years. Most of this run-off occurs in the spring, with the result that there is too much water in our rivers at the time of the year when it is needed least and very little, if any, during midsummer when it is required most. In addition to the flooding which is caused by spring run-off, occasionally floods also occur during the summer on watersheds which have little natural protection. These summer floods do serious damage to crops. Such floods are not confined to a few of our largest rivers, but records show that all rivers of any consequence have from time to time caused serious damage in this way.

When Ontario was mostly covered with forest and the natural reservoirs, such as large swamps, had not been interfered with, severe flooding probably was not as frequent as it is today because these two factors had an ameliorating effect on the flow of water. Land clearing and drainage was necessary to open up the country for agriculture, but in some respects this was carried beyond the point of necessity, thereby aggravating the flood situation. In order now to



THE HISTORY OF THE  
CITY OF BOSTON

From the first settlement of the  
English in 1630 to the present time  
the city has grown from a small  
village to a large metropolis. The  
population has increased from about  
1000 in 1630 to over 600,000 in 1900.  
The city has been the seat of  
commerce and industry since its  
founding.

The city has been the seat of  
learning and culture since its  
founding. It has been the home  
of many of the great men of  
the world. It has been the  
center of the American  
Revolution. It has been the  
seat of the American Republic.  
It has been the home of the  
American people.

The city has been the seat of  
the American Republic. It has  
been the home of the American  
people. It has been the center  
of the American Revolution.

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been the home of the American  
people. It has been the center  
of the American Revolution.

regain a more or less stable condition of the rivers and streams, certain conservation measures must be carried out, such as the reclaiming of large swamps and water storage areas, the reforestation of marginal and submarginal land, and also by a program of proper land use as indicated by farm planning, whereby run-off from gently sloping land can be controlled by such methods as contour cultivation and grass land where such is indicated. Such methods aim to control water where it falls on the land. If this could always be done it would be the ideal solution of the flood problem. But to minimize the required flood storage in a large watershed, a program of improved land use would need the co-operation of a great many individual farmers. This would take many years to accomplish. More immediate measures are therefore also necessary, especially where urban centres are frequently flooded.

One of the first problems facing the hydraulic engineer is to estimate or measure the run-off from a drainage basin, which in turn causes flooding farther down the valley. This includes a careful examination of rainfall over the years at different times of the year, which in turn presupposes that weather stations have been established in the area. Topography, types of soil, the amount of vegetative covering - particularly tree growth - on the area, and the gradient of the river, which has a bearing on the rapidity with which the water travels to the river's mouth, must all be carefully studied. If no gauging stations have been established then the run-off must be measured by taking the above factors into consideration. An approximate figure of flow must then be determined, by comparison with a neighbouring drainage basin which has gauge records, in order to decide how much protection by the use of reservoirs is required. If, on the other hand, gauges have been established, by which a daily record is kept of the amount of water going

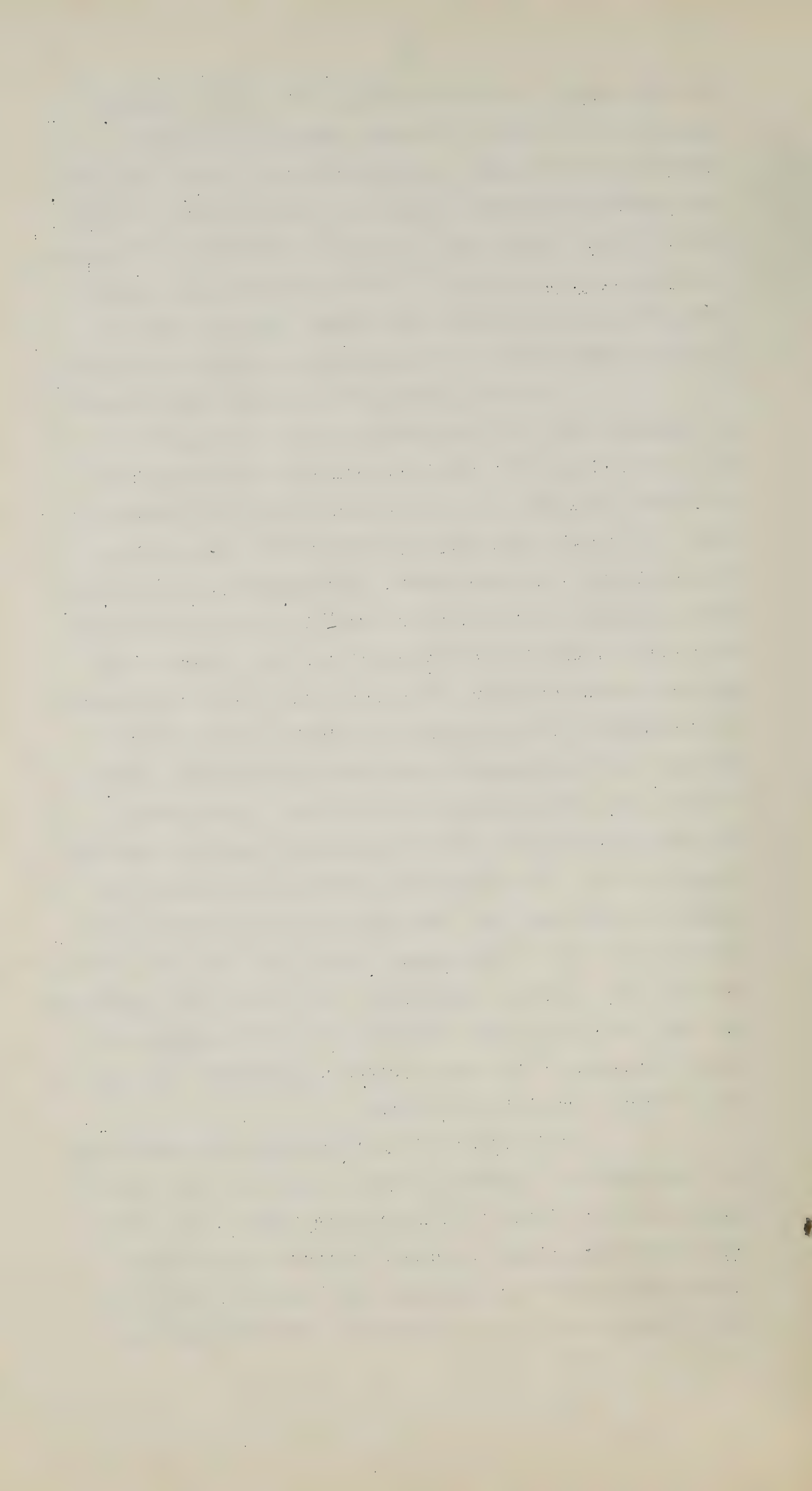


down the channel at certain points, then a more accurate appraisal can be made of how much protection is needed. Unfortunately, in Southern Ontario only those rivers which have power possibilities have a record of gauging over the years, and it is only within the last four or five years that gauging stations have been set up to record the flow on the smaller ones. This lack of stream measurement makes the work of hydraulic engineering in Southern Ontario extremely difficult.

After the amount of run-off has been measured by whichever means are available to the engineer, it will give him a figure of flow which will indicate how much of this water will have to be held back by different methods in order to give the necessary protection where flooding is taking place. This means that a reconnaissance survey of the whole watershed must be made in order that suitable valleys be selected where dams can be built for the storing of the required amount of water. When more than a sufficient number of such reservoir sites have been selected, each must be measured as to its capacity, and the required number chosen to hold back sufficient water to solve the flood problem. In addition, wherever a reservoir is built and the dam is of reasonable size, some exploratory work must be done at the damsite to make sure that the bedrock is sufficiently close to the surface and of the proper quality, so that the proposed dam will have a proper foundation. Only after this preliminary work has been carried out can the reservoirs be chosen, the actual designing of the dam structures undertaken and the work carried through to completion.

While conservation reservoirs are usually built for the purpose of preventing floods, they are needed just as much in Southern Ontario for increasing summer flow. This has become increasingly important in recent years because rivers with extreme low flow and those which dry up entirely are a health menace to the communities through which they





pass. Summer flow is necessary for flushing out the channel; to furnish water for industrial plants; for the practice of good agriculture; and is absolutely necessary for dilution where urban municipalities empty the effluent of their sewage disposal plants or raw sewage into the river.

The building of dams for the prevention of flooding and the increasing of summer flow is a comparatively new concept in engineering. It is only within recent years that structures of this kind have been used for this purpose. The older methods included such projects as straightening and widening the river channel and removing obstructions such as islands in the river, narrow bridges and other man-made works which might obstruct the flow or cause ice jams. Also for such work, a river was occasionally diverted into another watershed or dikes were built to hold it within its banks. Such practices are aimed at one thing only, namely to get rid of water as quickly as possible. They do not take into consideration the necessity of holding water at the headwaters for deep infiltration or retaining it for summer flow throughout the year. On some rivers in Ontario, channel improvements, diversions and even dikes must be carried out and built, especially where dams and reservoirs are not economical and summer flow is not a major problem.



## CHAPTER 3

### HYDRAULICS OF THE DON RIVER

#### 1. Introductory Remarks

On most watersheds in Southern Ontario a hydraulic report is concerned with three connected problems, namely; flood control, summer flow and recreational lakes. On the Don Watershed the order of importance of the three above considerations is reversed. Floods on the Don have occurred periodically in the past, but may be classed as the nuisance type; additional summer flow would be an advantage if it could be produced economically, chiefly for diluting pollution in the lower reaches of the river; recreation, on the other hand, is of paramount importance. The hydraulic work which has been done in the valley has emphasized this type of reservoir. There is a pressing need for recreation facilities near the City of Toronto, which is in the centre of the largest concentration of population of Canada. If these facilities are not provided now the cost and difficulty will be greatly increased. Accordingly, investigations were carried out on sites where small lakes could be created with adjacent land available for parks, and little regard has been given to the problem of storage for flood control and increased summer flow.

Reconnaissance surveys have been made of several reservoir sites and approximate estimates of capacity and cost are submitted for those considered feasible. Further surveys will be necessary if construction is contemplated, but it would appear that the cost of building a sufficient number of storage reservoirs to have any appreciable effect on increased flow in the Don would be prohibitive. Even with such reservoirs, no great improvement in low flow conditions could be guaranteed.

The cost of providing two recreation lakes of moderate size would be over \$250,000. Difficulties might be experienced in maintaining the level of these lakes in low



The first of the year was a very dry one, and the crops were much injured. The weather was very hot, and the ground was very dry. The crops were much injured, and the people were very poor. The first of the year was a very dry one, and the crops were much injured. The weather was very hot, and the ground was very dry. The crops were much injured, and the people were very poor.

The second of the year was a very wet one, and the crops were much injured. The weather was very cold, and the ground was very wet. The crops were much injured, and the people were very poor. The second of the year was a very wet one, and the crops were much injured. The weather was very cold, and the ground was very wet. The crops were much injured, and the people were very poor.

flow periods, but it is believed that these might be overcome.

## 2. Geographical Characteristics of the River

To support the above statements, a brief recapitulation of the physiographic aspects of the river (already described in detail in this report) will be stated here, as they have a definite effect on the hydraulic problems of the watershed. The underlying shale is not exposed on the surface except by excavation at the Don Valley Brick Works. The overburden varies over the watershed and four belts or zones can be distinguished. The northernmost zone is a deep morainic deposit of light materials, extending south of Richmond Hill. It is important to the river since the many permanent springs supply most of the constant or base flow. South of the morainic zone lies a section of the Peel clay plain, extending approximately to Willowdale. The next zone reaches to the bluff forming the shoreline of old "Lake Iroquois", known in Toronto as "the Hill". It is till plain, deposited under glacial ice and deeply cut by post-glacial rivers. Its composition is therefore very varied, containing patches of stratified sands and gravel and consisting generally of a mixture of clay, silt, sand, gravel and boulders. From the "Hill" to Lake Ontario extends the "Lake Iroquois Plain", a complex of sands, silts and clays, with patches of the mixtures found in the second and third zones - clay, silt, sand, gravel and boulders.

The characteristics of the river valley are governed by the terrain through which the stream flows. In the moraines of the headwater zone the valleys are small and sharply V-shaped.

In the central Peel clay plain zone the streams meander on the flat floors of typically U-shaped valleys, having steep banks of about 25 feet in height and a more or less uniform width of from 300 to 600 feet, with no flaring out or widening of the flats suitable for good reservoir sites.



In the lower reaches as far downstream as the Forks the valley slopes are steep and often terraced and have depths up to 125 feet. From the Forks to the Prince Edward viaduct the depth is greatest, but decreases south of the viaduct as the stream approaches Toronto Bay.

The application of the foregoing characteristics to the creation of recreational lakes may be summarized as follows:

The heavy lateral clay slopes, the absence of lakes and swamps and, except for the headwater zone, the lack of forest cover and springs result in a high rate of run-off during spring freshets and summer storms, followed by extremely low flow during dry periods.

The narrow and generally uniform width of the valleys and in particular the steep gradient of the river bed results in short narrow reservoir sites; consequently the storage capacity of the reservoir sites is small compared with the cost of the dams.

### 3. Possible Reservoirs

The watershed was examined for all possible reservoirs and damsites, many of which were considered impracticable because of land values. Of the nine finally surveyed two have been selected as suitable for recreational areas.

Table H-1 shows the data for these reservoirs. If all the listed dams were built, the combined regulated discharge would yield an approximate increase from May 15 to September 20 - a period of 129 days - of only 4 c.f.s.<sup>1</sup> for each branch, or about double the present low flow, an amount which would improve the flow considerably but at a prohibitive cost.

The sites most suitable for recreational lakes

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1.  
Cubic feet per second.



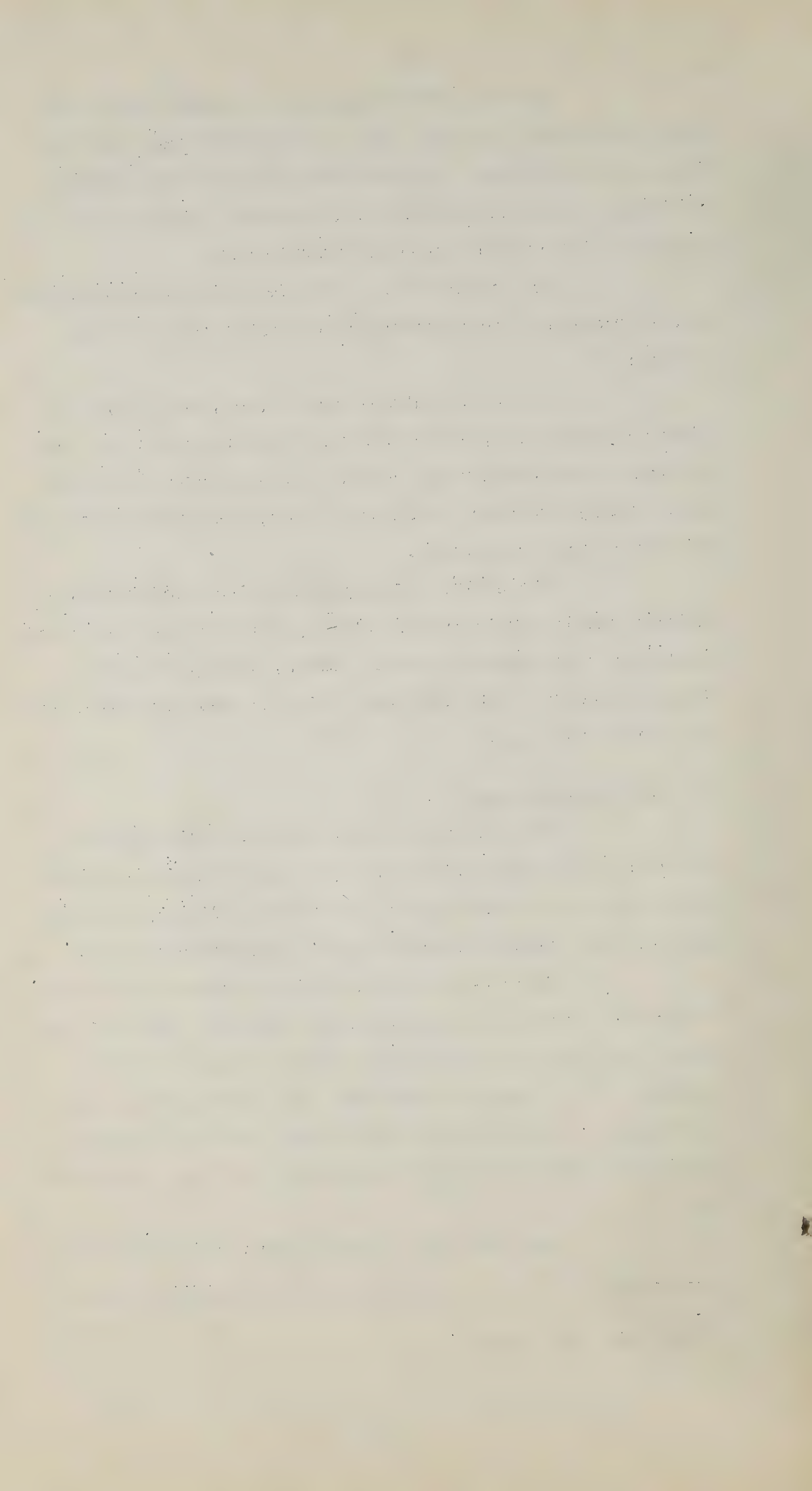
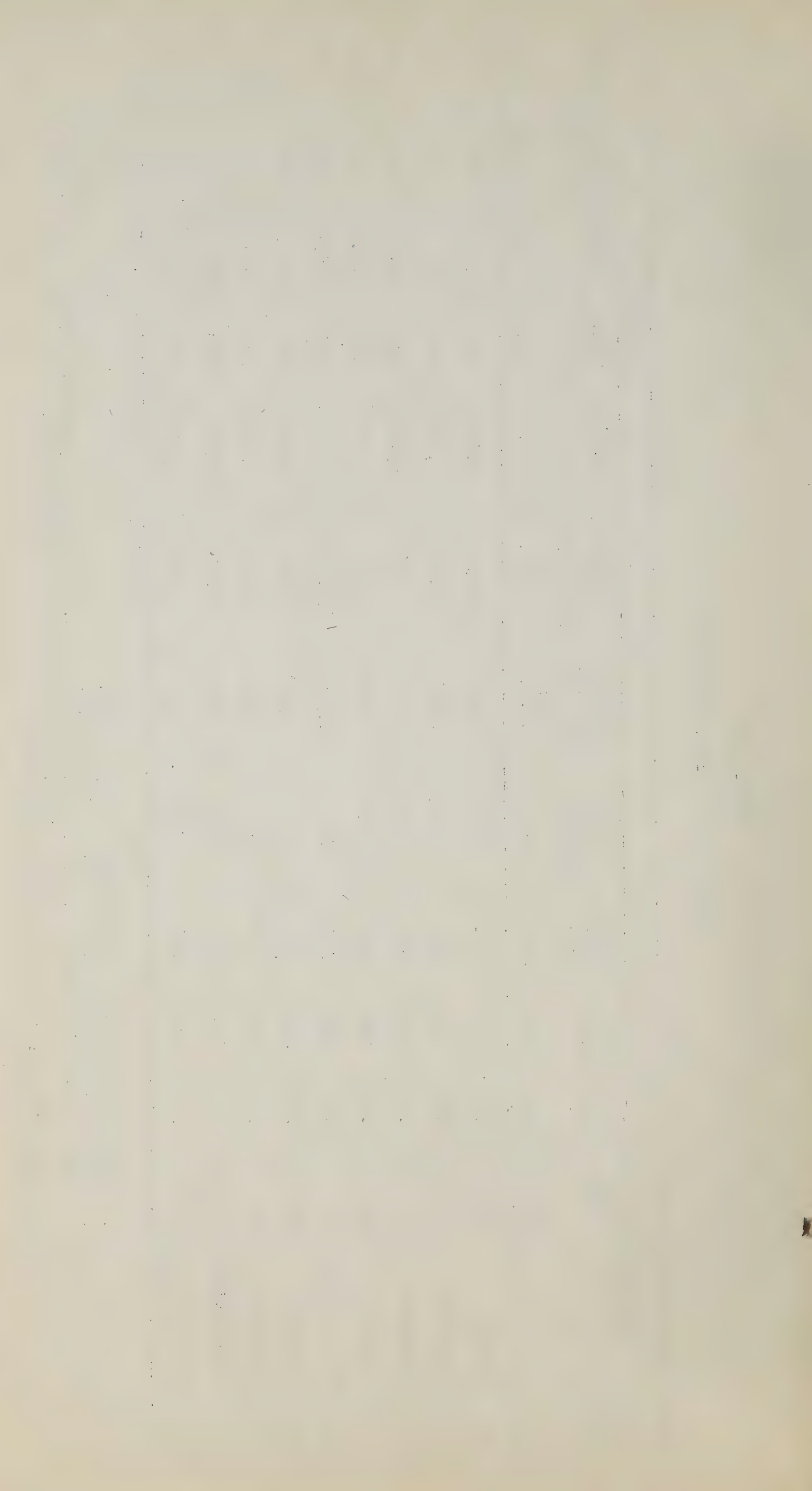


TABLE H-1

## DATA ON POSSIBLE RESERVOIRS

		DAM						RESERVOIR					
Site Nos.	Name of Site	Max. Height Feet <sub>1</sub>	Free-board Feet <sub>2</sub>	Total Length Feet	Length, Earth Fill Feet	Length, Concrete Spillway Feet	Spillway Capacity Not Less than: c.f.s. <sub>3</sub>	Drainage Area (above dam) Sq. Mi.	Length Feet	Width (Average) Feet	Depth Feet <sub>4</sub>	Storage Capacity Ac. Ft.	Area Acres
8	Oriole	24	7.0	124	---	124	3,900	55.38	5,500	150	17	117	17
5	Langstaff	27.5	7.5	430	384	46	1,470	14.70	3,500	340	20	170	27
1	Sherwood	27	5.0	380	340	40	350	5.76	2,500	310	22	135	18
2	Concord	33	5.5	480	410	70	850	14.25	4,800	400	27.5	328	44
3	Fisherville	32	5.5	680	570	110	1,300	21.63	4,200	530	26.5	420	51
4	Langford	38	5.0	400	370	30	300	2.64	2,300	360	33	235	19
6	Thornhill	35	5.0	280	180	100	1,640	17.58	4,000	430	30	354	40
7	German Mills	43	5.0	440	350	90	810	13.50	5,200	320	38	552	38
9	Wexford	23	5.0	300	260	40	330	5.49	4,100	210	18	102	20

1. Height from original stream bed to top of dam.
2. Distance from normal pond level to top of dam.
3. Based on run-off values of (a) 100 c.f.s./sq. mi. for area above Langstaff damsite.  
(b) 60 c.f.s./sq. mi. for remaining area.
4. Depth of water at dam at normal pond level.



are No. 5 Langstaff and No. 8 Oriole, shown red in Figure H-1 and briefly described as follows:

(a) Langstaff Dam and Reservoir (Fig. H-3)

The damsite for this lake is just above the Uplands Golf Club and strides the line between Lots 34 and 35, Concession I of Vaughan Township and is included in Uplands Park described in the section on Recreation. A 35-foot dam which would raise the water level 30 feet above the bed of the stream and allow 5 feet for freeboard, would create a lake of approximately 4,600 feet in length with an average width of about 340 feet, a water surface area of 35.6 acres, a depth over the flats at the dam of 22 feet, and a storage capacity of 525.3 acre feet<sup>1</sup>. It would, however, drown out a private dam of a large estate some 3,500 feet north-west and submerge the top of that dam by a depth of 10 feet. Also the road between Lots 35 and 36 would be flooded for a length of about 500 feet and at a maximum depth of 12 feet. The lake would have a small encroachment on Lot 34 and would extend across Lots 35, 36 and 37.

A 27.5-foot dam which would raise the water 20 feet above the bed of the stream would create a lake approximately 3,500 feet long, with an average width of 340 feet, a water surface area of 27 acres, a depth of water over the flats at the dam of 12 feet, and have storage capacity of 170 acre feet. It would just reach the said existing private dam and would only flood a short section of the road between Lots 35 and 36 by about 2 feet.

The lake would extend about 200 feet into Lot 37 and not cross the lot as with the higher dam.

The greater storage in the 35 foot dam, regulating the top 10 feet for summer flow purposes over a 129 day

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1.

A unit used for measuring water in a reservoir. One acre foot is one acre covered with water to a depth of one foot, or 43,560 cubic feet of water.





# DON WATERSHED

SHOWING

DRAINAGE AREAS OF EAST  
AND WEST BRANCHES

POSSIBLE RESERVOIR SITES

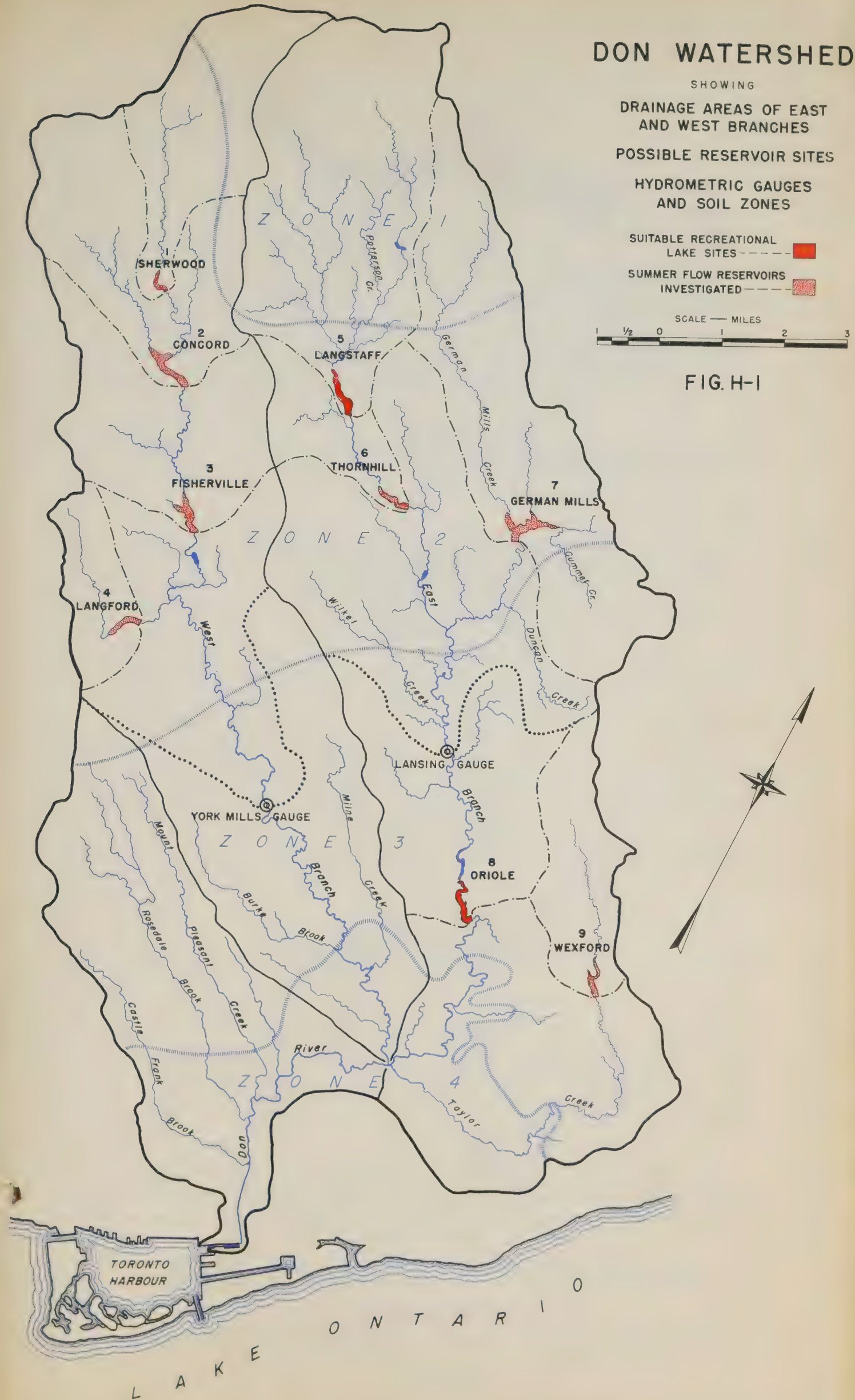
HYDROMETRIC GAUGES  
AND SOIL ZONES

SUITABLE RECREATIONAL  
LAKE SITES

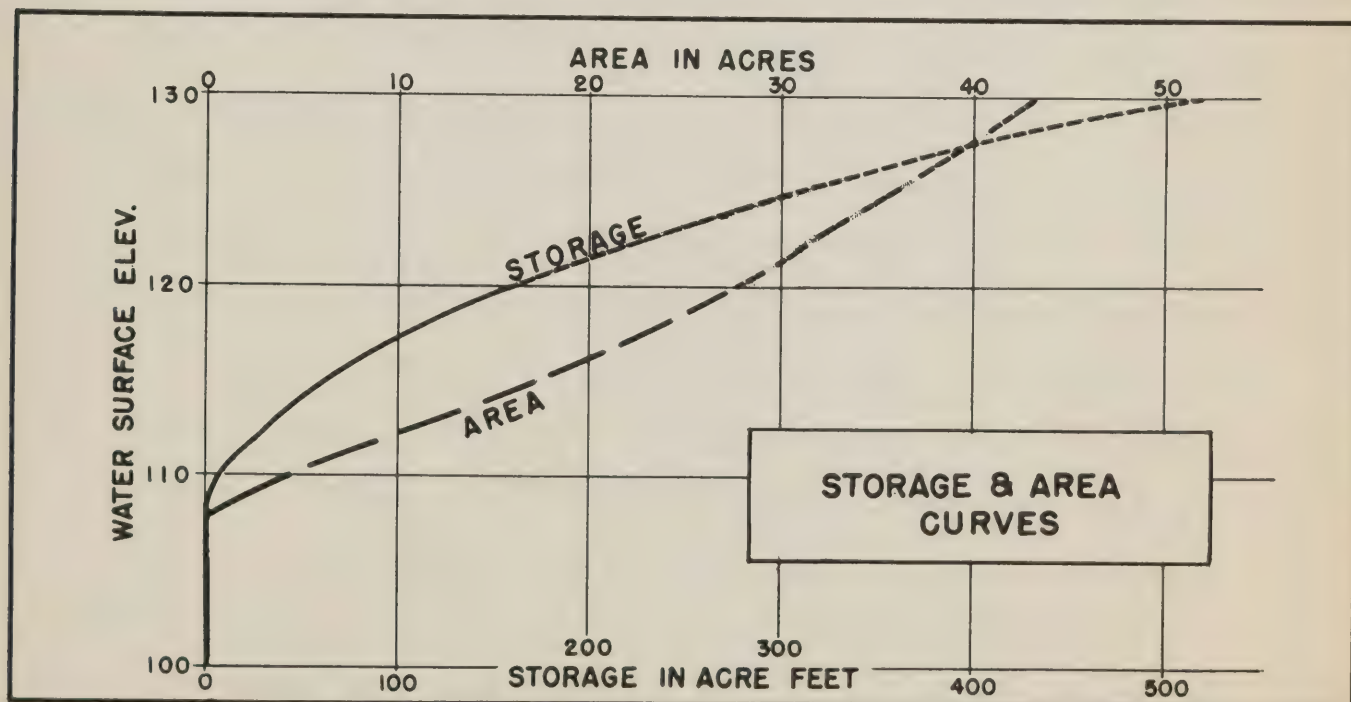
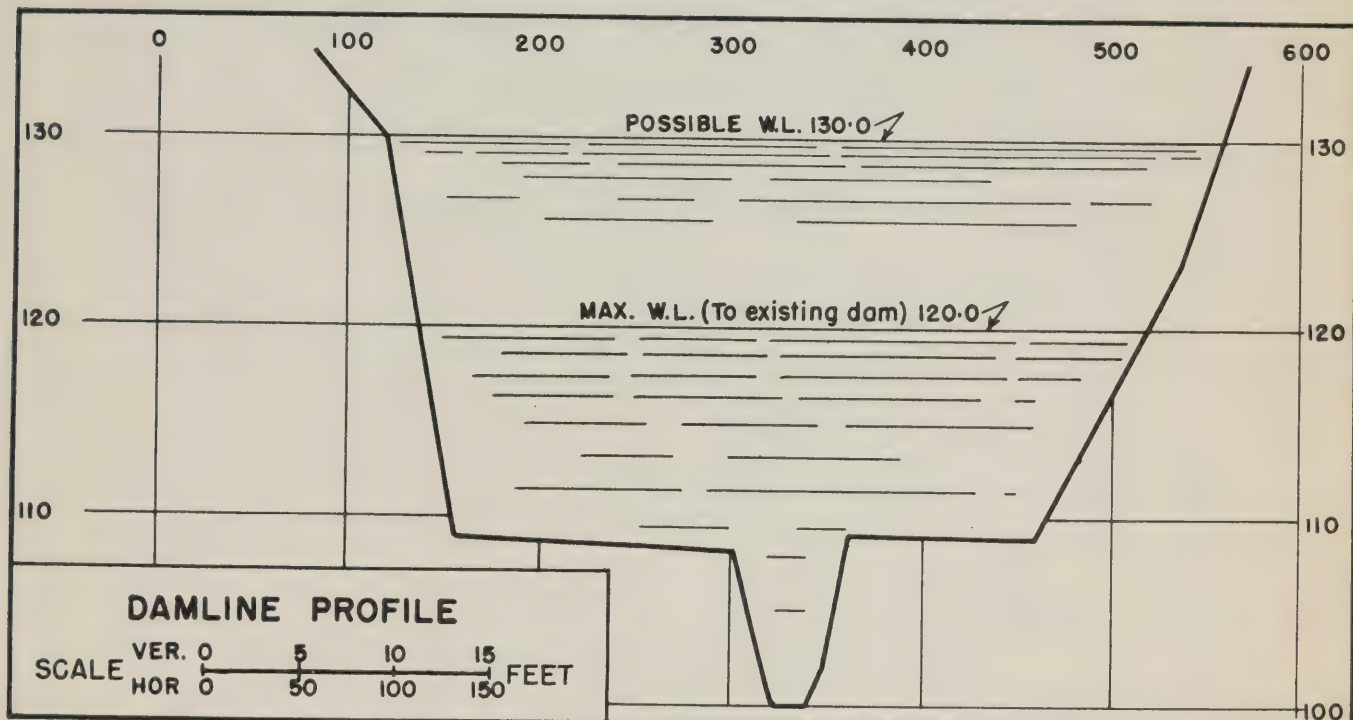
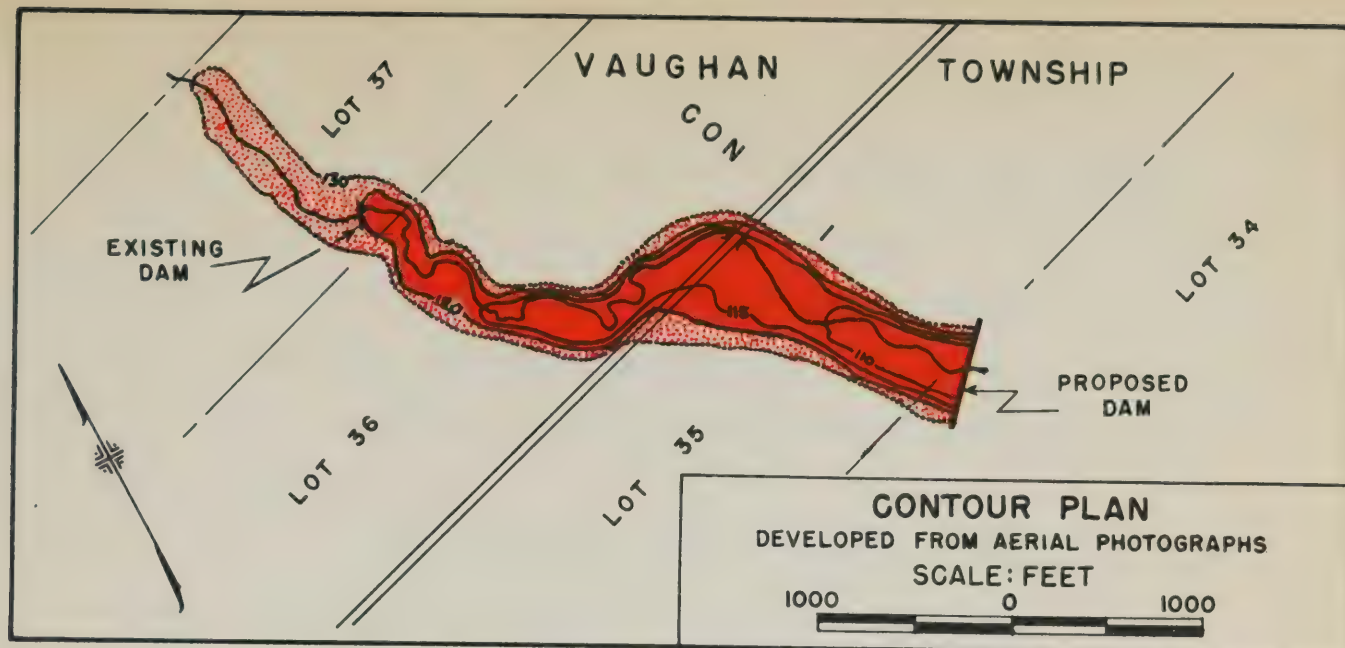
SUMMER FLOW RESERVOIRS  
INVESTIGATED

SCALE — MILES  
1 1/2 0 1 2 3

FIG. H-1







# DON RIVER **No.5, LANGSTAFF RESERVOIR**

SCALES: AS SHOWN

DATUM: ELEV. OF STREAM BED AT PROPOSED DAMSITE ASSUMED 100.0

FIG. H-3





period, would increase the summer flow on the East Branch below the dam by approximately 1.3 c.f.s., but would defeat the purpose of a lake for recreation as the water level would be progressively lowered, which would leave a trash beach and a condition undesirable and impracticable for swimming and boathouses.

The estimated cost of the 27.5 foot Langstaff Dam and Reservoir as of March 1, 1950, is \$115,000, which covers all costs including the purchase of land.

The dimensions of the dam are shown in Table H-1. It provides for an earth fill dam with 7.5 feet of free-board having a concrete spillway section, with a crest 20 feet above the bed of the stream, fitted with stop logs and valves to provide the necessary control.

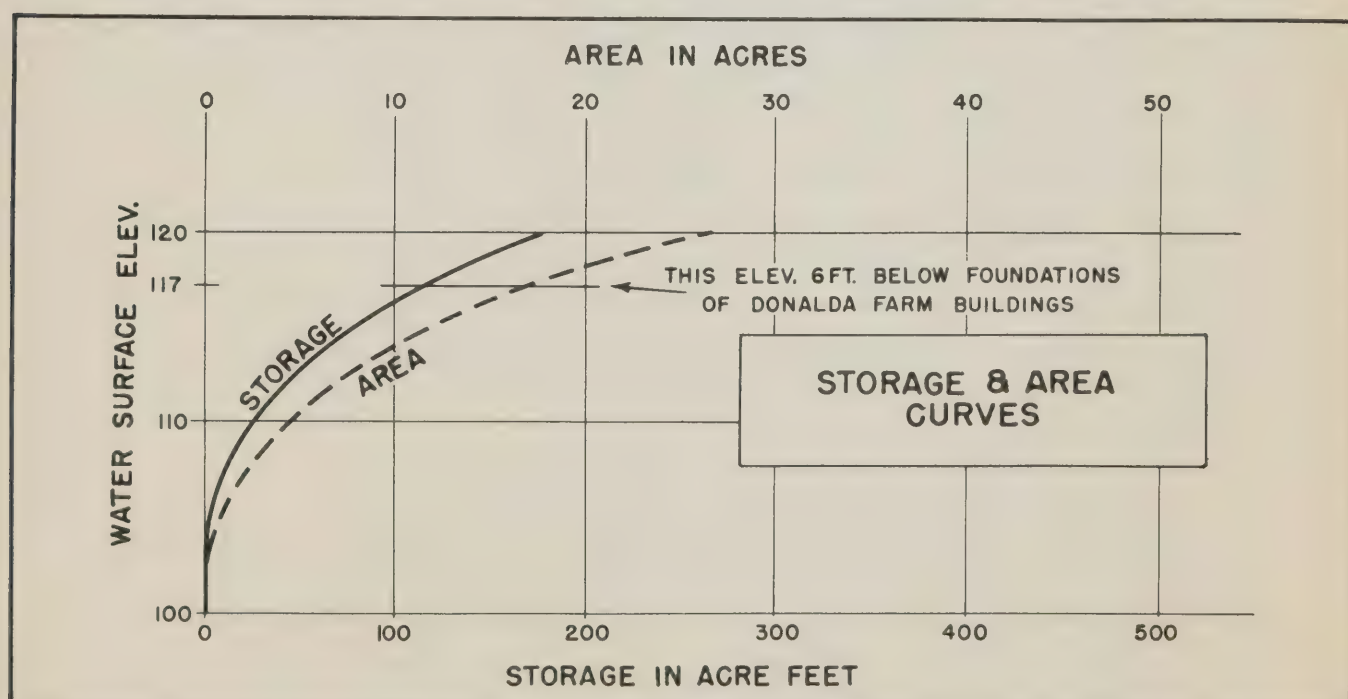
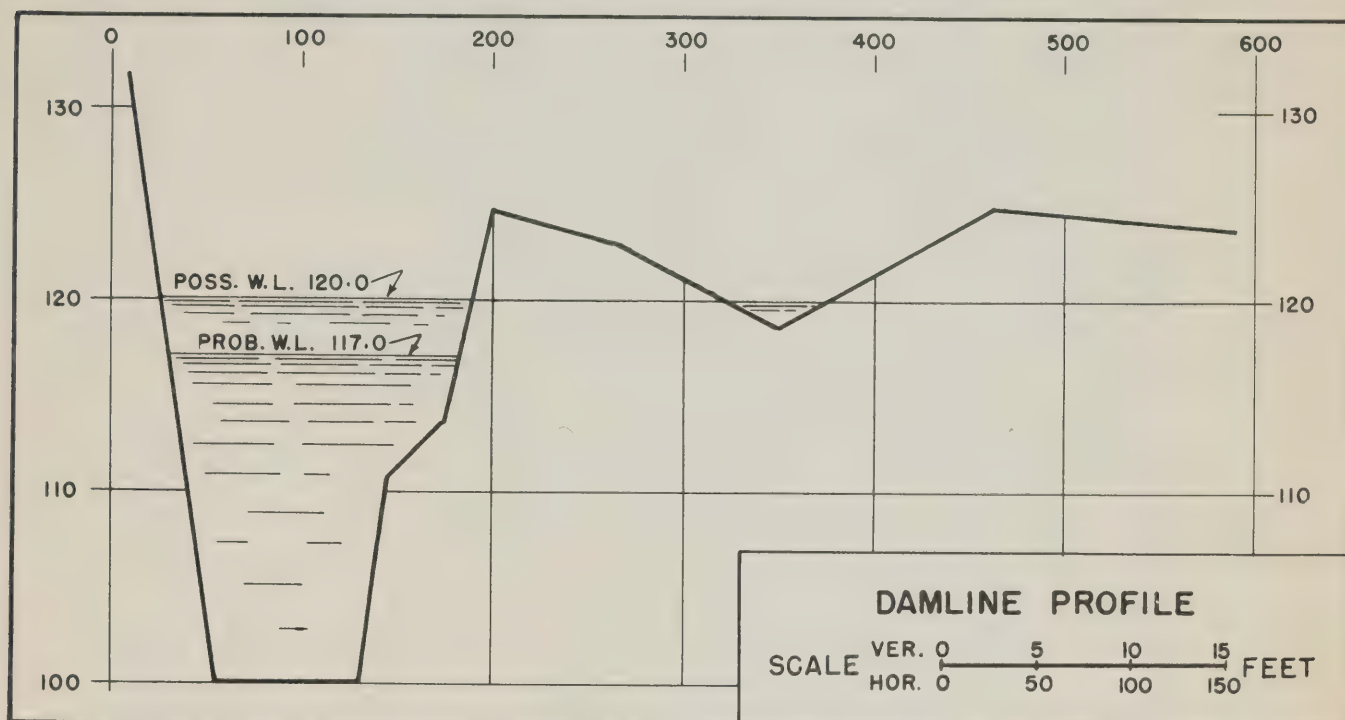
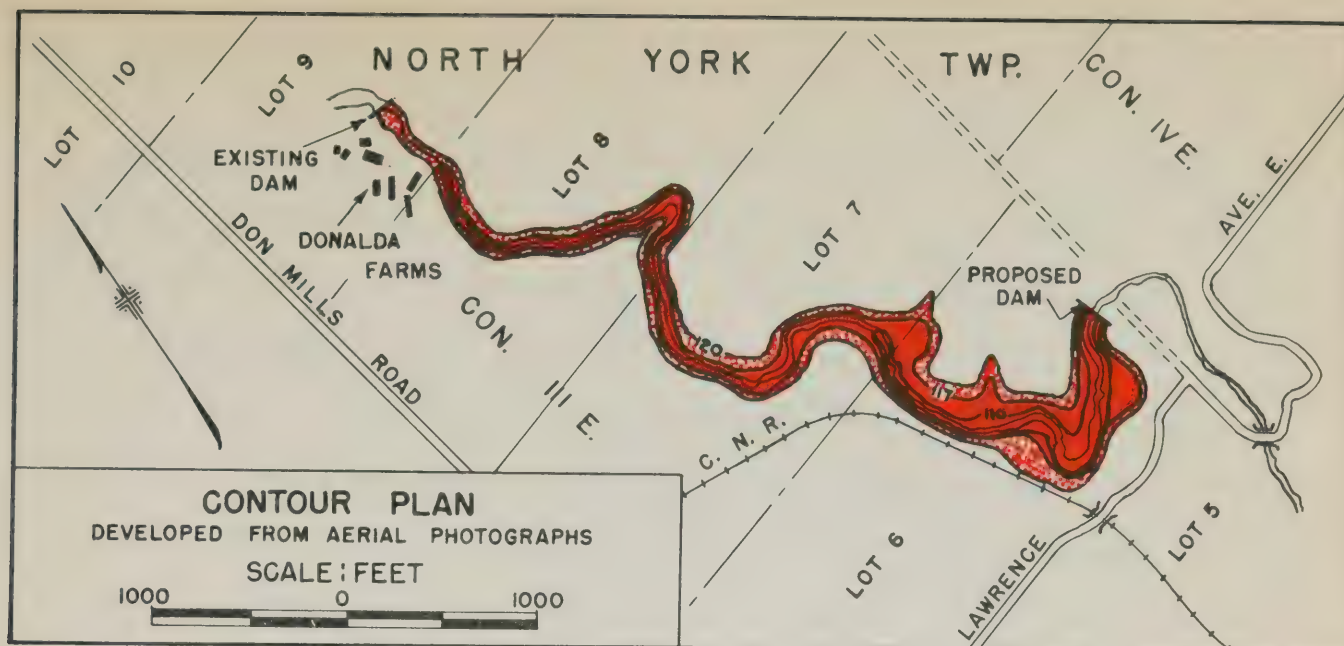
Owing to the pervious nature and the great depth of the overburden, it provides for sealing of the dam with a double row of steel sheet piling driven to a depth of 1-1/3 times the head of water. The concrete spillway section would be supported on a reinforced concrete mat.

(b) Oriole Dam and Reservoir

The dam for this reservoir (Fig. H-4) is located at the easterly end of Lot 6, Concession III East of North York Township and is included in Oriole Park described in the section on Recreation. The reservoir at a maximum water level of 17 feet above the bed of the stream at the dam would have a depth of 5 feet of water over the flats near the dam and would roughly extend over to and then parallel the C.N.R. in Lot 6 and thence across Lots 7 and 8. It would have approximately a length of 5,500 feet and an average width of 150 feet with a maximum width just west of the dam of about 400 feet. The water surface area would be about 17 acres and it would have a storage capacity of about 117 acre feet.

The surface features at the damsite appear to be suitable for this low dam. There is a high steep boulder clay-cut bank at the north end of the line and a sandy gravel





## DON RIVER No.8, ORIOLE RESERVOIR

SCALES: AS SHOWN

DATUM: ELEV. OF STREAM BED AT PROPOSED DAMSITE ASSUMED 100.0

FIG. H-4





terrace at the south end. The height of the dam is limited owing to valuable farm buildings located on the river flats at the north end of the reservoir. The water level opposite the farm buildings would be 6 feet below the lowest point of the buildings, which should provide ample freeboard for any summer flash flood that might occur when the reservoir was full. With such limited capacity this dam and reservoir would not provide any effective flood control but the dam would create a lake suitable for recreation purposes.

The land that would be flooded is pasture with a few scattered trees. The adjacent land, particularly at the damsite and along the easterly side of the reservoir, would be suitable for a park site and the gentle easterly slopes would provide easy access to the proposed lake.

The proposed dam would be of the concrete gravity type with an overflow section 98 feet long and two 10 foot stop log sections. These sections, together with the abutments and wing walls, would be supported on a reinforced concrete mat. A double row of sheet piling running the full length of the mat and extending to a depth  $1\frac{1}{3}$  times the maximum expected head of water ( $1\frac{1}{3} \times 21.5 = 28$  feet), would prevent any seepage and would to some extent support the mat.

With the stop logs in place, the dam would discharge 3,910 c.f.s. under the design head of 4.5 feet and with the stop logs out, under the same head, 5,710 c.f.s. or almost three times the maximum recorded peak flow of 1,967 c.f.s. for March 19, 1948.

The estimated cost of the Oriole Dam and Reservoir, as of March 1, 1950, is \$136,000, which covers all costs including land purchases.

#### 4. The Water Level of the Recreational Lakes

The ideal condition would be to provide a storage reservoir above a recreational lake, regulated to hold the latter at a constant water level during the summer months.





Langstaff damsite on  
West Branch, west of  
Langstaff.



Oriole damsite on East  
Branch at Lawrence  
Avenue East.



The "Forks" at the Don  
Mills Road crossing during  
summer 1949.



The "Forks" at the height  
of the spring freshet,  
April 3, 1950.







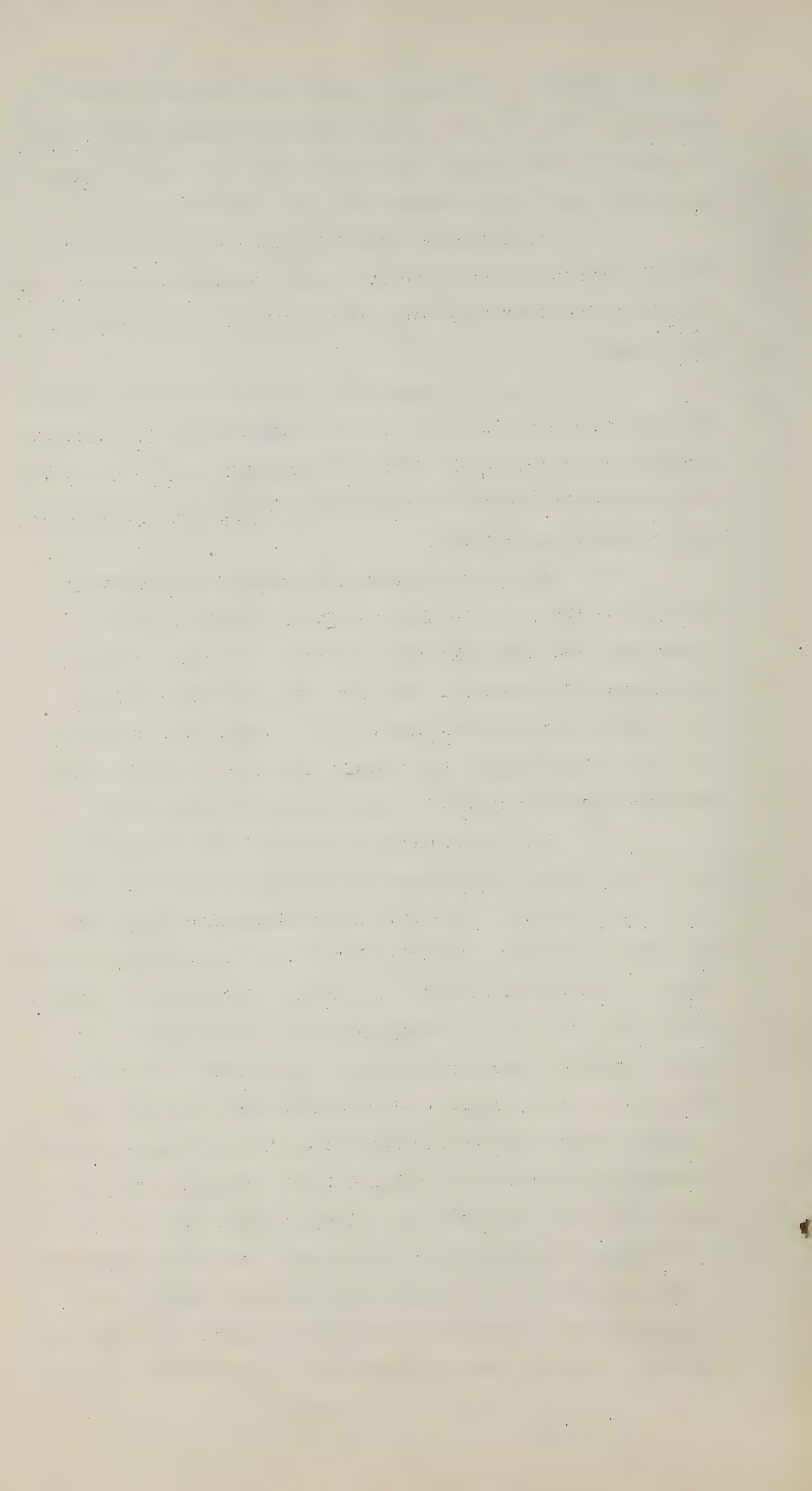
The cost, however, as already pointed out, is prohibitive. If riparian rights below the dam are not to be disturbed it would be necessary that the dam discharge during the summer months an amount equal to the inflow into the reservoir.

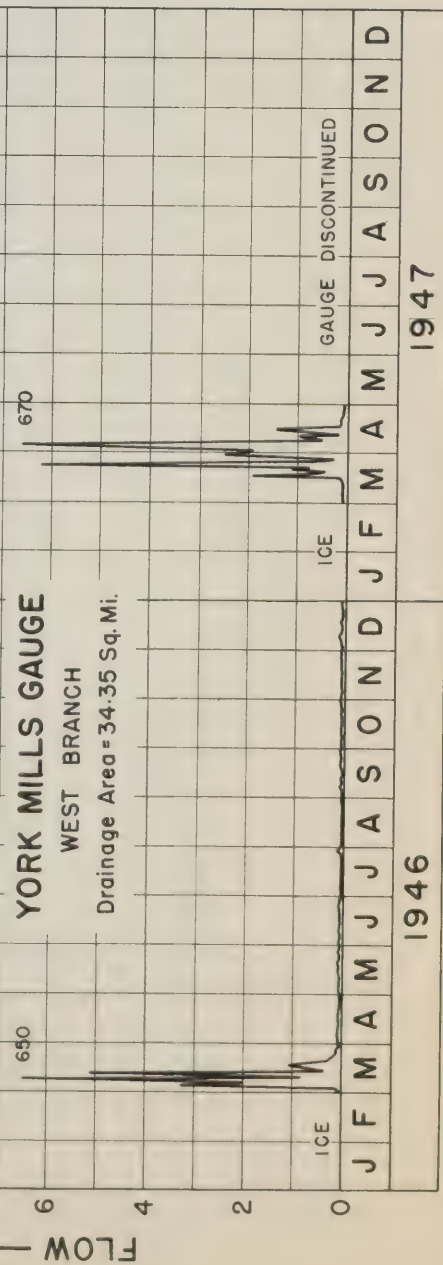
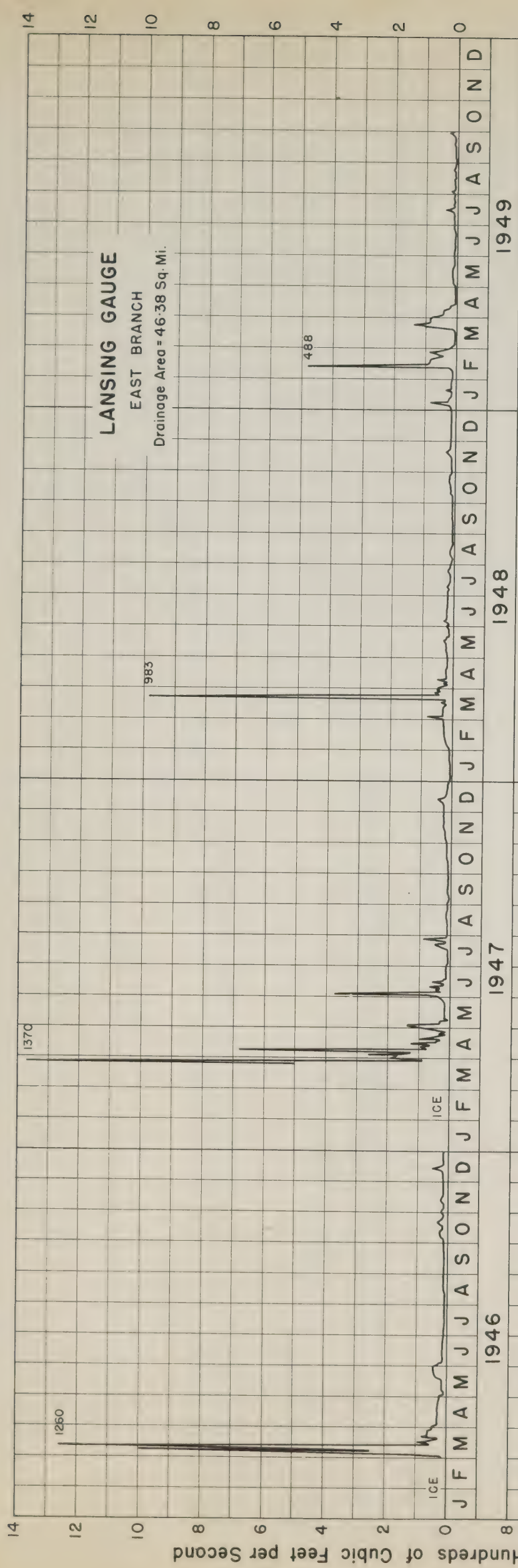
From the hydrographs (Fig. H-5) it is apparent that the reservoirs would be full after the spring run-off and from Table H-2 that they would for an average year remain full until June 1.

Table H-2 shows the net effect of precipitation and evaporation on the water level of the Langstaff and Oriole Reservoirs for the months April to September and the resulting decrease in flow below the reservoirs should they be maintained at a constant water level.

The precipitation data shown is the monthly average for the Don Watershed over a period of 20 years of record from the meteorological stations at Toronto, Malton, Oak Ridges and Agincourt. The data shown on Table H-3 for water surface evaporation was supplied by Mr. L.J. Chapman and Mrs. Marie Sanderson of the Ontario Research Foundation from researches by them in the science of evapotranspiration.

The reservoirs would be full after the spring run-off and for an average year they would remain full until June 1, and from that time on, the precipitation being less than the evaporation, the water level would be lowered by 1.80 inches at the end of June to 6.69 inches at the end of September. These depths are for an average year and would obviously be greater in drier years and also for years above the average when, after a heavy storm (followed by a long drought), the reservoir might fill and discharge over the spillway an excess discharge, which has been included in the depth of precipitation in the table but would be a loss to the reservoir. The water level of the reservoir, therefore, could conceivably drop as much as a foot or more under adverse conditions. Based on meteorological records for Toronto, the period of May 1 to September 30, 1887, was the driest in 107 years with a total





# HYDROGRAPHS

**DAILY MEAN FLOWS PLOTTED FROM DOMINION  
WATER AND POWER BUREAU RECORDS**

FIG. H-5



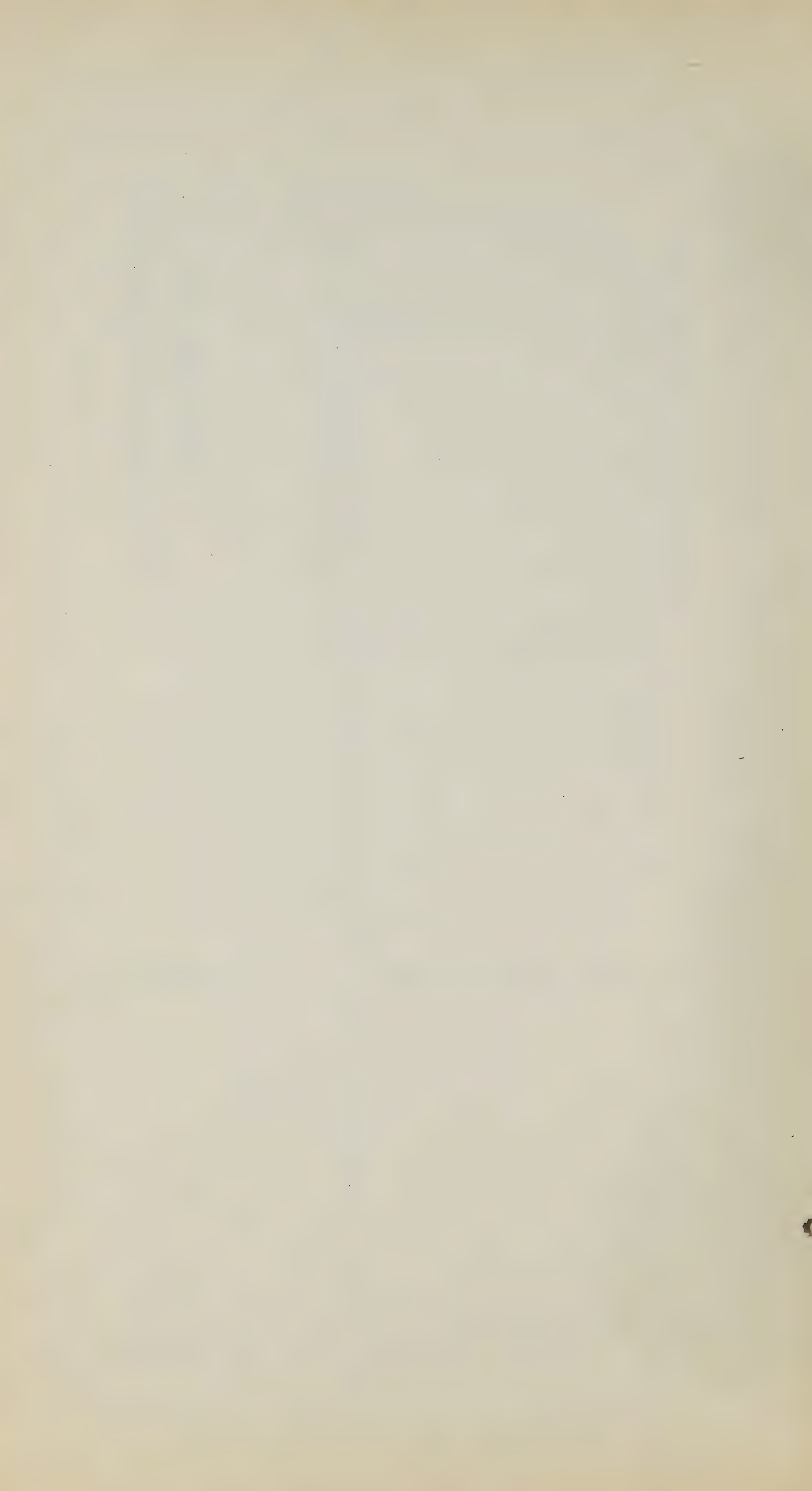


TABLE H-2

DROP IN RESERVOIR WATER LEVEL ON THE DON WATERSHED DUE TO EVAPORATION  
FOR A PERIOD FROM MAY 1 TO SEPTEMBER 30

	Depth in Inches					
	April	May	June	July	Aug.	Sept.
<p>PRECIPITATION, being the monthly average for a 20-year period from 1930 to 1949</p> <p>WATER SURFACE EVAPORATION<sup>1</sup></p> <p>ALGEBRAIC DIFFERENCE IN WATER LEVEL SURFACE</p> <p>AVERAGE FOR A 20-YEAR PERIOD OF A PROGRESSIVE DROP IN WATER LEVEL, the reservoirs discharging an amount equal to the inflow</p> <p>PROGRESSIVE DROP IN WATER LEVEL<sup>2</sup>, the reservoirs discharging an amount equal to the inflow (by a modification of the Thornthwaite method), using the 4 meteorological stations: For the year 1949, an extremely dry year</p> <p>PROGRESSIVE DROP IN WATER LEVEL, the reservoirs discharging an amount equal to the inflow (by a modification of the Thornthwaite method), using meteorological records for Toronto Station only: For the year 1887, the driest in 107 years</p> <p>AMOUNT OF DISCHARGE AT THE DAM, less than the inflow, that would be necessary to maintain a constant water level for an average year from May 15 to September 20:</p> <p>At the Langstaff Dam</p> <p>At the Oriole Dam</p>	2.33	3.06	2.60	3.13	2.15	2.88
	1.05	2.85	4.40	5.30	4.60	3.15
	+1.28	+0.21	-1.80	- 2.17	- 2.45	- 0.27
			-1.80	- 3.97	- 6.42	- 6.69
		-2.50	-7.42	-10.24	-13.14	-11.83
		-2.63	-4.12	- 8.91	-11.06	-12.44
	Reservoir full May 1					
	Flow in C.F.S.					
			0.069	0.081	0.091	.01
			0.042	0.049	0.056	.007

1. From Table H-3, using Mr. L.J. Chapman and Mrs. Marie Sanderson's data.  
2. In 1949 precipitation and temperatures were both slightly higher than those of 1887.



TABLE H-3

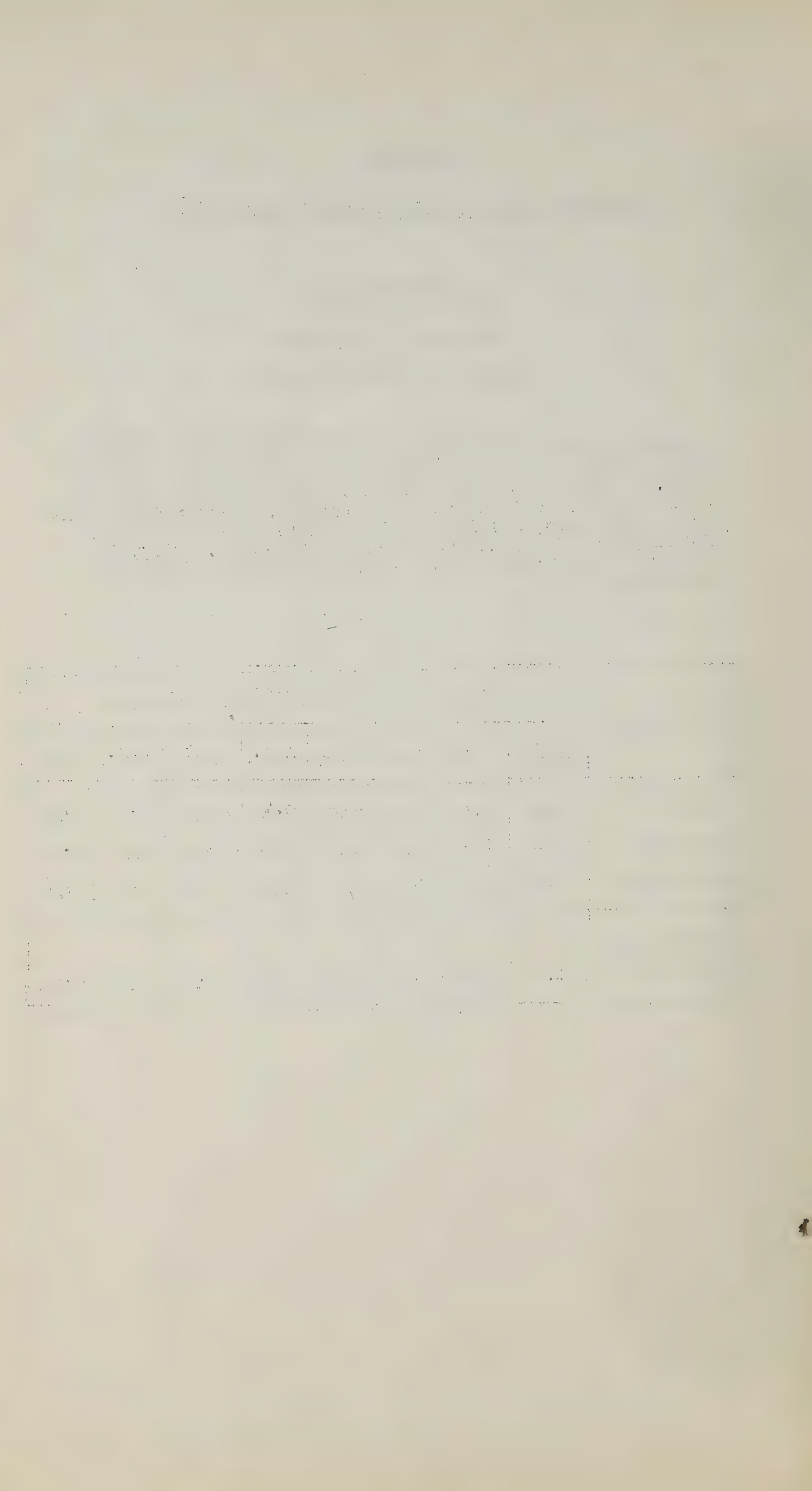
AUTHENTIC DATA ON WATER SURFACE EVAPORATION

supplied by  
Mr. L. J. Chapman  
and  
Mrs. Marie Sanderson  
of the  
Ontario Research Foundation

The data in the table below were computed from experiments and studies by Mrs. Sanderson to determine the potential evaporation and transpiration from soil surfaces. The soil potential results were then converted to water surface evaporation by applying the factor  $4/3$  to the soil potentials, a value which was determined at and for Rothamstead, England, and which may be applied here, the climatic conditions for the period not being greatly at variance.

Station	Water Surface Evaporation in Inches							
	April	May	June	July	Aug.	Sept.	Oct.	Nov.
Toronto	1.2	2.9	4.4	5.4	4.7	3.2	1.6	0.4
Agincourt	1.1	2.8	4.3	5.6	4.7	3.2	1.6	0.3
Oak Ridges	0.9	2.8	4.4	5.2	4.5	3.1	1.5	0.2
Average of Toronto and Oak Ridges	1.05	2.85	4.40	5.30	4.60	3.15	1.55	0.30





rainfall of 7.32 inches, as compared with 9.17 inches for the same period in 1949, which was also an extremely dry year.

Table H-2 shows that for 1949 the reservoir would have been lowest at the end of August with a drop of 13.14 inches and for 1887, the driest summer period in 107 years, 12.44 inches. A modification of the Thornthwaite method for determining surface evaporation was used for the 1949 and 1887 summer periods, its application being simple and sufficiently accurate to serve this purpose.

5. The Effect of Maintaining Recreational Lakes at a Constant Water Level

In maintaining a reservoir at a constant water level during the summer period, obviously for some periods the discharge from the dam would be less than the inflow to the reservoir, a condition which could cause annoyance to and perhaps result in legal action by those affected below the reservoir. It is believed however that with careful regulation of the dam the water level could be kept nearly constant, within practical limits, and cause little or no concern to property owners below.

Of the four years of record for the Lansing gauge, minimum mean daily flows of 4 c.f.s. occurred during the months of June, July and August, 1949, one of the driest of the 107 years of meteorological records. For the other years the minimum flows for those months varied from 5 to 8 c.f.s.

It will be seen that the amounts shown in Table H-2 as necessary to maintain a constant water level are only a small proportion of these minimum flows. The required discharge could be easily maintained if the dam were so operated that the reservoir level was brought up by easy stages, the discharge never being reduced to such an extent as to materially affect the flow below.

This assumption is reasonable when it is considered that North York Township pumps for domestic purposes as



much as 2 c.f.s. from the East Branch and 3.5 c.f.s. from wells, some of this being returned to the river but most of it lost. Also an unknown but considerable amount of water is pumped from the river to water lawns of golf courses and private estates, all of which is lost by evaporation or transpiration.

## 6. Farm Ponds

The construction of farm ponds has been recommended in the Land Use section of this report. Scores or hundreds of these ponds would not only serve as a valuable utility to their owners, but would substantially raise the groundwater table and increase the summer flow. Those located in the upper moraine zone, where permanent springs abound, would contribute cold fresh water. On the other hand, however, the ponds located in the stream beds if kept full in seasons of freshet might to some extent intensify floods, but no serious damage need result if the dams were built to withstand an extreme rate of run-off.

## 7. Hydrology

### (a) The Hydrologic Cycle and Its Component Parts

#### (1) The hydrologic cycle

"The hydrologic cycle is the descriptive term applied to the general circulation of water from the seas to the atmosphere, to the ground, and back to the seas again"<sup>1</sup>.

#### (2) The run-off cycle

"The run-off cycle is the descriptive term applied to that portion of the hydrologic cycle between incident precipitation over land areas and subsequent discharge through stream channels, or direct return to the atmosphere through evapotranspiration"<sup>1</sup>. It is this phase of the hydrologic cycle that concerns spring floods and summer flow. Brief definitions of the phases of the run-off cycle for an incident summer storm are as follows:

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1. Applied Hydrology - Linsley, Kohler and Paulhus.



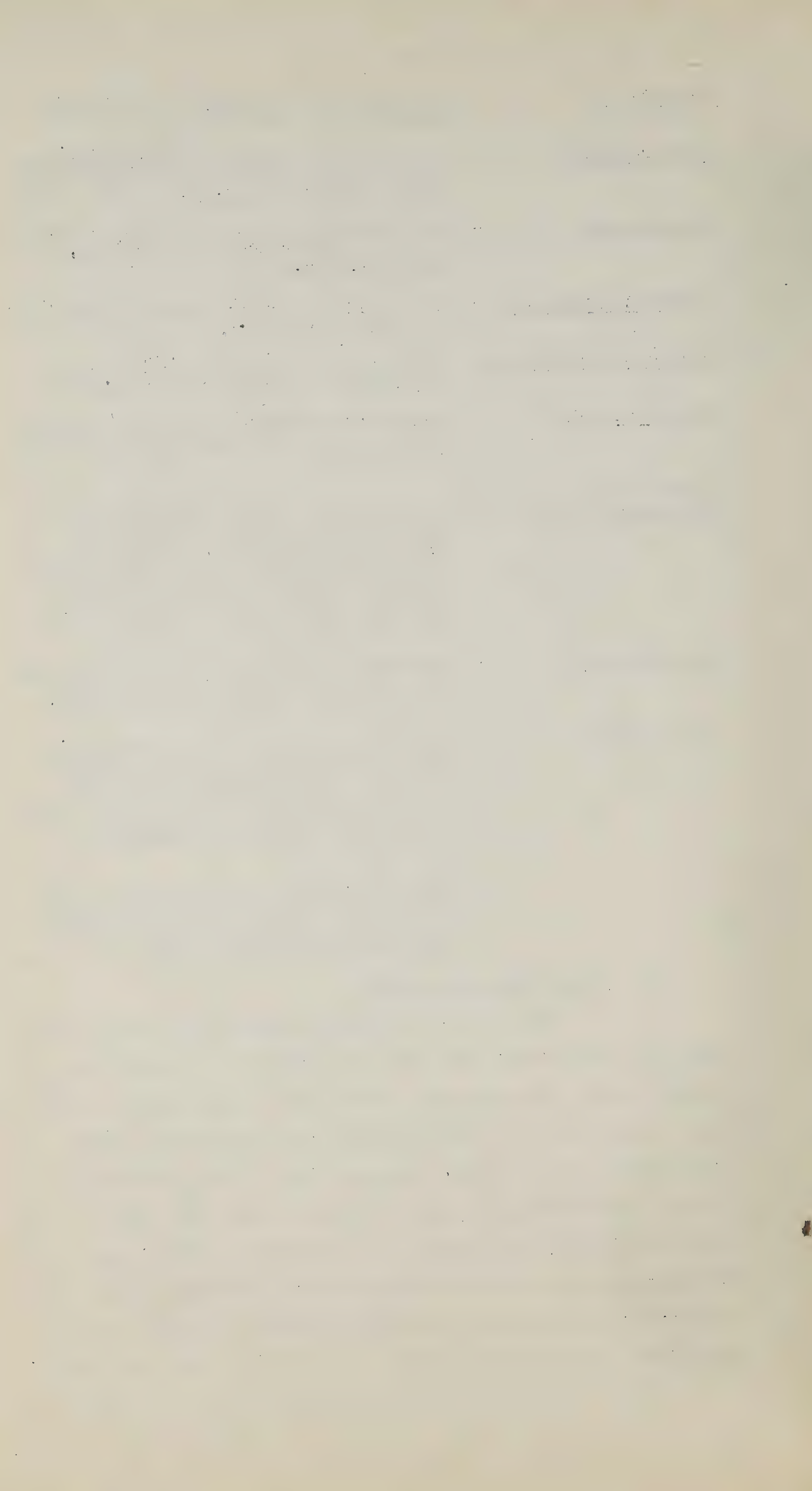


- Evaporation - precipitation returned to the atmosphere by the sun's radiation.
- Transpiration - that portion which supplies vegetative growth and is discharged to the atmosphere as water vapour.
- Interception - that portion which is retained temporarily on the surface of vegetation, buildings, etc.
- Depression Storage - that portion of water which is held in surface depressions.
- Channel Precipitation - that portion which falls directly on the surface of streams or lakes.
- Surface Run-Off - that portion which reaches the streams or any rivulet by travelling over the soil surface.
- Interflow or Sub-surface Flow - that portion which infiltrates the soil surface and moves laterally through the upper soil horizons until its course is intercepted by a stream channel or until it returns to the surface at some point downslope from its point of infiltration.
- Soil Moisture - that portion which moistens or wets the soil and when in sufficient quantity percolates to the ground-water table.
- Ground Water - that portion in the super-saturated, pervious soil which moves or slowly flows by devious routes through the pervious or semi-pervious soil or rock and ultimately finds an outlet and discharges into streams or emerges as springs.

The ground-water flow makes but a very small contribution to peak discharges and is the source of the permanent or base summer and winter flow.

(b) Stream Flow and Run-Off

Stream flow or run-off consists of surface flow plus the ground-water flow which is constantly entering the stream channel all along its course. In a broad sense stream flow is the excess of precipitation over evaporation, transpiration and deep seepage. Surface flow is that portion of rainfall and melted snow and ice which reaches the stream channels directly by flowing over the ground surface, and is the component which forestry and land use practices strive to conserve by retaining or retarding as much as possible and by promoting deeper and more rapid percolation to the water table.



(Surface flow includes precipitation falling on the surface of the stream and its tributary ponds, lakes and reservoirs). It usually constitutes the greater portion of stream flow and is responsible for the fluctuations in the stream flow. The ground-water flow (percolation) to the stream is going on continuously and supplies the stream flow during periods of drought.

As shown above, precipitation is the source of all stream flow and to a large degree the stream flow characteristics are determined by the characteristics of the precipitation. In addition there are many other factors which influence the amount of run-off (Hayford<sup>1</sup> has shown that there are at least 23 factors affecting run-off) and which may be generally subdivided as follows:

A - Meteorological Conditions

(1) Precipitation:

- a Amount
- b Intensity
- c Area covered
- d Seasonal distribution
- e Proportion of snow and ice

(2) Temperature

(3) Relative humidity

(4) Wind

B - Drainage Area Characteristics

(1) General:

- a Location
- b Size
- c Shape

(2) Topography:

- a Surface slopes
- b Water areas

(3) Geology:

- a Character of surface
- b Character of sub-surface

(4) Condition:

- a Cultivated
- b Vegetation
- c Drainage

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<sup>1</sup> Hayford and Folse: "A New Method of Estimating Stream Flow".





C - Storage

- (1) Natural lakes, ponds and swamps
- (2) Artificial reservoirs
- (3) Ground storage

(c) Spring Freshet Run-off

In Southern Ontario there is a decided difference between the run-off conditions for summer storms and those at the time of the spring freshet, the latter according to hydrometric records being much more severe in Southern Ontario.

At the time of the spring break-up there is no transpiration and small evaporation and the rate of run-off is much greater due to the depth and weight of the accumulated snow pack. The temperature at the time of the break-up and whether accompanied by rain or sunshine, the condition of the ground - dry, wet, saturated, frozen or ice - the slopes and the river gradients, all cause wide differences in the rate of run-off.

The most adverse condition for spring floods would be a heavy accumulation of snow pack on ice or frozen ground with heavy rain, high temperature and ice jams.

Many attempts have been made to derive a relationship between stream flow and precipitation by taking the above factors into account, but owing to their number and to the fact that each of them may vary so widely such a relationship becomes very complicated and indefinite. It is said that every stream is a law unto itself in regard to flow and this law can best be determined by actual stream flow measurements over a long period of time. The detailed past performance of a stream so determined is the best indication of what might be expected in the future. In general the value of such records increases with the length of the period covered and at least 25 to 35 years of continuous flow records are required in order to be able to forecast future flows with any reliability



However, even with long-term records the extrapolated flows will only be representative of average conditions and will not reveal any "freak" floods which might occur.

(d) Hydrometric Records

The systematic measurement of stream flow was begun in 1912 by the Ontario Hydro Electric Power Commission, but as they were only interested in the development of hydro-electric power, metering stations were established only on those streams indicating such a potential. In 1919, following a co-operative agreement between the above Commission and the then Department of the Interior, the Dominion Water and Power Bureau (now the Water Resources Division of the Department of Resources and Development, referred to hereafter as the "Bureau") assumed the responsibility of the hydrometric work. Unfortunately hydro-power development was still the motive, and the meterings were confined to those streams where such development appeared feasible. In 1944, when the Department of Planning and Development was established, they requested the Bureau to install gauges on many of the rivers in Southern Ontario which owing to their "flashy" nature had not been considered suitable for power and therefore had not been metered. In all about 26 new gauging stations have been set up, and while their period of records is short they are however invaluable in making an analysis of the stream flow characteristics. Fortunately the highest spring flows on record for the rivers of Southern Ontario occurred in 1947 and 1948 and were recorded by these newly-installed gauges.

Hydrometric records measure the flow or discharge at strategic points in rivers and from them the rate of run-off above these points can be readily obtained for any recorded flow stage.

Gauges or graduated rods are installed in the river, and after the hydrometric surveys have been made the discharge at that point for any reading of the gauge is known. Some gauges are of the automatic type which graphically show





the discharge corresponding to any time, but most of them are the "staff gauge" type which are read once or twice daily by observers and more frequently during flood periods.

Discharge records may be shown graphically by the hydrograph which represents the volume of water which passes a section of the river, the ordinate of the curve being discharge and the abscissa the time, and the area of the hydrograph the volume discharged for any corresponding time interval.

"The flood hydrograph may be considered as the integration of all the upstream factors affecting flow"<sup>1</sup>.

(e) Determination of the Maximum Rate of Run-Off

(1) Methods for determining run-off

When designing a dam for a reservoir provision must be made for a spillway which will safely discharge the flood waters of any anticipated flood in order that the flood waters shall not top the dam and destroy it. Up to the present time there is no rational means to determine with certainty a value for maximum run-off.

The engineer therefore is in the difficult position of determining an approximation, by the best means available, of a sufficiently high value for safety and at the same time a safety factor that is logical and not beyond economical reason.

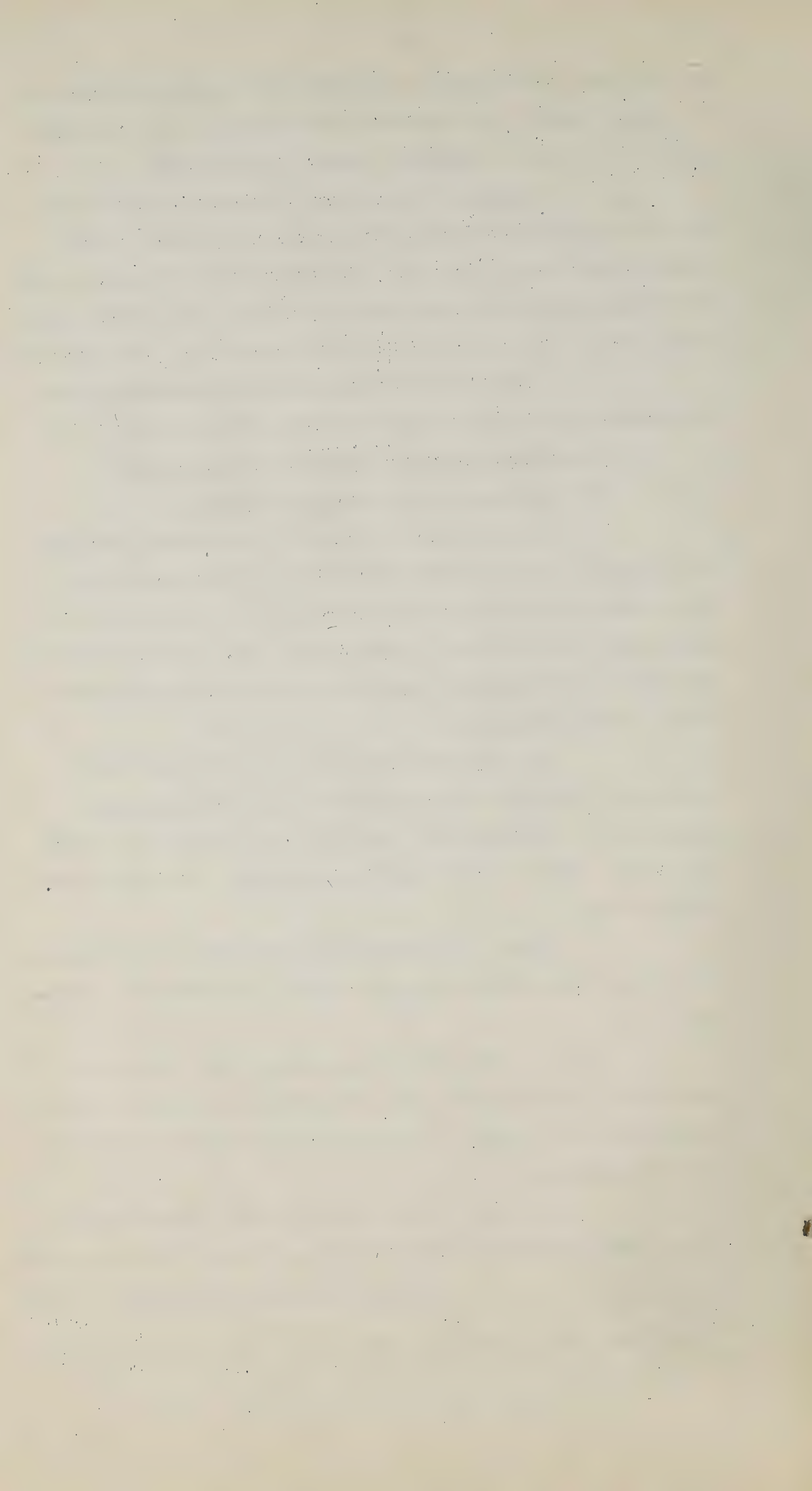
There are several approaches that may be used to determine the maximum rate of run-off, including the following:

a The unit hydrograph method, which is a correlation of hydrometric and meteorological records. At the present time this method is considered by hydrologists to be the best approach.

b By a direct proportion of meteorological records with hydrometric run-off when a reliable run-off factor

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1. Floods and Their Hydrology and Control - H.K. Barrows. P.54.



can be established, and in particular when only short periods of hydrometric records are available.

c The frequency curve whereby, with 20 or more years of hydrometric records, from a curve developed by the theory of probability, extrapolated values for a maximum run-off are predicted for a period of once in 50, 100 and up to 2,000 or more years. This method, however, has been discredited by hydrologists in recent years.

d With 20 years or more of hydrometric records, a run-off graph for spring freshets showing maximum mean daily flows against total run-off between base flows is developed. By increasing the maximum run-off by one-third or more the corresponding mean daily flow and run-off is determined.

When hydrometric records are available over a period of 20 years or more, many hydraulic engineers consider from  $1\frac{1}{3}$  to  $1\frac{1}{2}$  times the greatest rate of run-off for that period to be safe to use as a maximum. An attempt was made to establish a rate for maximum run-off by correlating hydrometric and meteorological records, but owing to the short period of the hydrometric records, and in particular the effect of the many dams on the river and the pumping of water from the river for domestic purposes and other causes, so many assumptions were necessary that the results obtained were not dependable. It is therefore proposed to use (with an adjustment later explained) the 1948 hydrometric records for the Don River gauge at Lansing, being a modification of the above approach (d).

There were two gauges installed on the Don in 1945 (Fig. H-1), Lansing on the East Branch and York Mills on the West Branch, the latter having been discontinued after April 1947. Fig. H-5 shows the hydrograph for York Mills gauge for 1946 and part of 1947 and also those for the Lansing gauge from 1946 to 1949 inclusive. Table H-4 shows the greatest mean daily flows at the spring break-up for the Don and Humber Rivers and Duffin's Creek for the years 1946 to 1949 inclusive.

In other rivers in Southern Ontario, some of which





TABLE H-4

COMPARATIVE MAXIMUM MEAN DAILY FLOWS  
HUMBER RIVER, DON RIVER AND DUFFIN'S CREEK

Year	HUMBER RIVER		DON RIVER		DUFFIN'S CREEK	
	Date	Flow	Date	Flow	Date	Flow
1946	Mar. 7	4,370	Mar. 8	1,000	Mar. 7	2,230
	Mar. 9	4,850	Mar. 11	1,260	Mar. 9	2,050
1947	Mar. 25	4,690	Mar. 26	1,370	Mar. 25	1,990
	Apr. 5	4,530	Apr. 5	680	Apr. 5	1,050
					Apr. 6	1,670
1948	Mar. 20	6,130	Mar. 19	983	Mar. 19	3,470
1949	Feb. 15	3,170	Feb. 15	488	Feb. 15	540 (ice)
	Mar. 23	4,530	Mar. 22	103	Mar. 22	1,230

1870  
The first of the year  
was a very dry one  
and the crops were  
very poor.

The second of the year  
was a very wet one  
and the crops were  
very good.  
The third of the year  
was a very dry one  
and the crops were  
very poor.  
The fourth of the year  
was a very wet one  
and the crops were  
very good.  
The fifth of the year  
was a very dry one  
and the crops were  
very poor.  
The sixth of the year  
was a very wet one  
and the crops were  
very good.  
The seventh of the year  
was a very dry one  
and the crops were  
very poor.  
The eighth of the year  
was a very wet one  
and the crops were  
very good.  
The ninth of the year  
was a very dry one  
and the crops were  
very poor.  
The tenth of the year  
was a very wet one  
and the crops were  
very good.

have records dating from 1915, a period of 35 years, it is shown that the spring floods for the years 1947 and 1948 had the greatest run-off. The Grand, Moira and South Nation Rivers, each with 35 years of records, show that the greatest maximum mean daily discharges occurred in the spring of 1947, but from information from residents in these areas the peak<sup>1</sup> flows were actually higher in 1948 than those of 1947. Consequently, although the Don has only four years of records, it is logical and considered safe to assume that the greatest spring peak flow on the Don also occurred in 1948. The records for the Lansing gauge show 1947 to have had the greatest mean daily flow (Fig. H-6), but from timed readings recorded during the 1948 spring freshet Lansing gauge showed a peak reading of 1,967 c.f.s., the records of which are shown in Fig. H-7. This has been substantiated by a resident on the Don north of Bloor Street, who stated that the water level of the river during the spring freshet was definitely higher in 1948 than in 1947. Fig. H-8 shows hydrographs for the greatest summer storms since 1945.

(2) Estimated maximum run-off, using hydrometric records

The 1948 peak flow of 1,967 c.f.s. in terms of run-off per square mile =

$$\frac{\text{Peak discharge}}{\text{Drainage area above Lansing Gauge}} = \frac{1,967 \text{ c.f.s.}}{46.38 \text{ sq. mi.}} = 42.41 \text{ c.f.s. per sq. mi.}$$

Safety factor 1.5 x 42.41 = 63.6 c.f.s. per sq. mi.  
 Safety factor 2.0 x 42.41 = 84.8 c.f.s. per sq. mi.  
 Safety factor 2.5 x 42.41 = 106.0 c.f.s. per sq. mi.

Owing to the topography the rate of run-off varies over the watershed and a maximum run-off of 60 c.f.s. is

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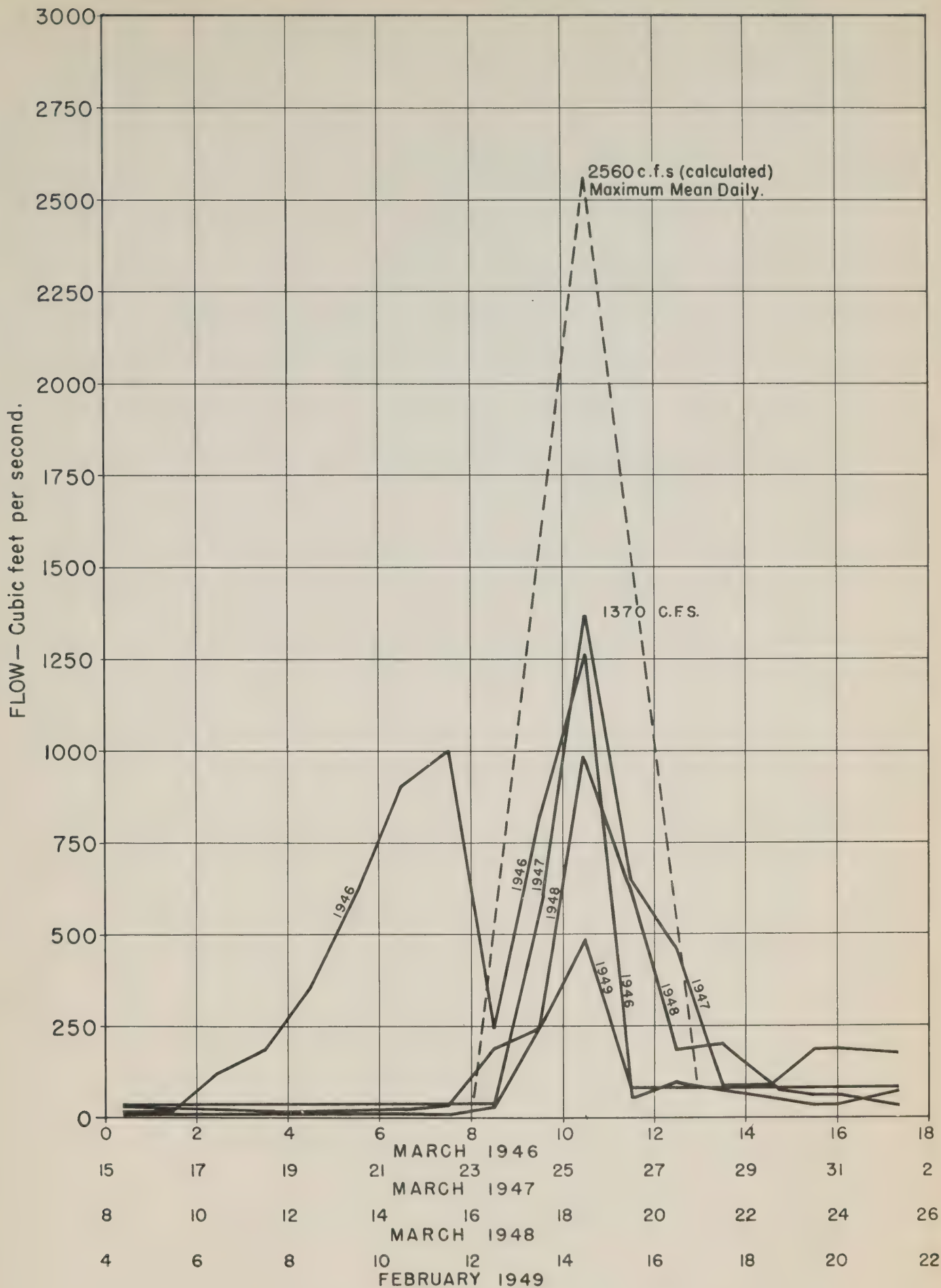
1.

Mean daily discharges are the average for the day. "The peak is the highest value of the hydrograph, but the crest segment extends from the point of inflection on the rising limb to a similar inflection point on the recession limb."

Applied Hydrology: Linsley, Kohler and Paulhus. P. 394.







# HYDROGRAPHS

Gauge at — LANSING — (East Branch)

Daily mean flows plotted from Dominion  
Water and Power Bureau records

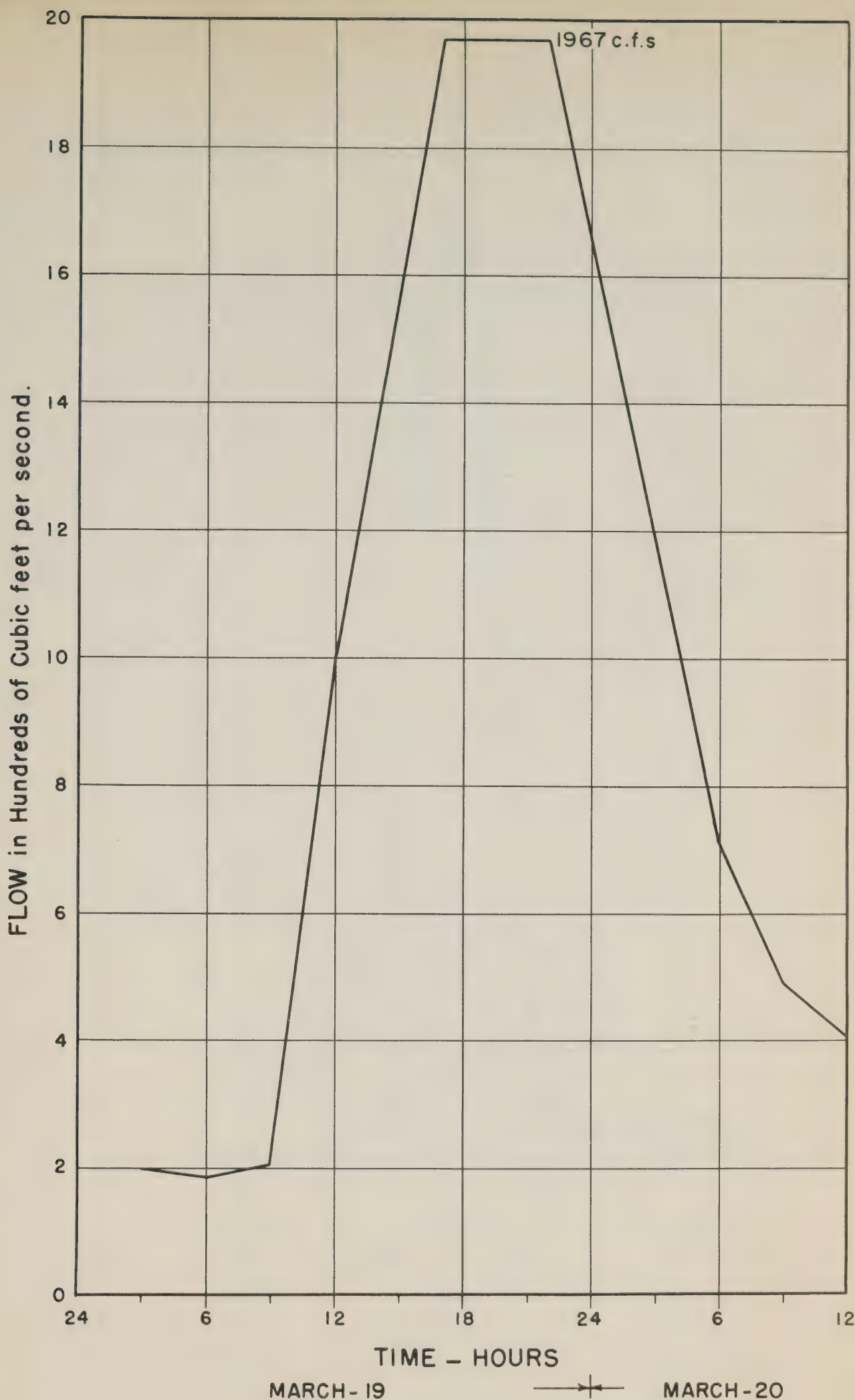
FIG. H-6



assumed for the central part of the watershed and 100 c.f.s. per square mile for the upper rugged zone above Langstaff. The area included in the 60 c.f.s. per square mile maximum runoff is that above the line of reservoirs except that of Langstaff.







MARCH - 19

MARCH - 20

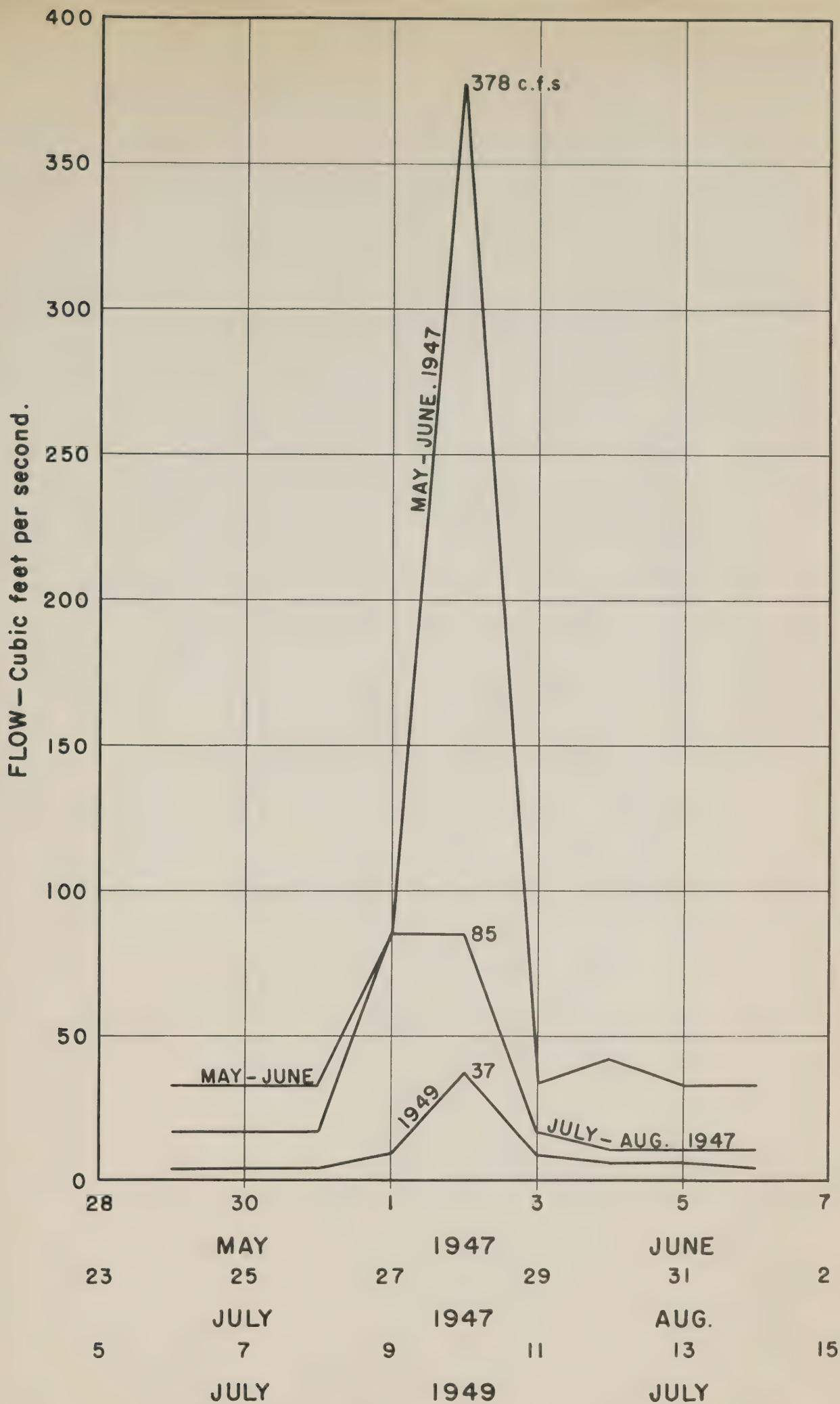
1948

# HYDROGRAPH

Showing TIMED readings at LANSING GAUGE  
from  
Dominion Water & Power Bureau flow records

FIG.H-7





# HYDROGRAPHS

Gauge at—**LANSING** —(East Branch)

Daily mean flows plotted from Dominion  
Water and Power Bureau records.

FIG.H-8









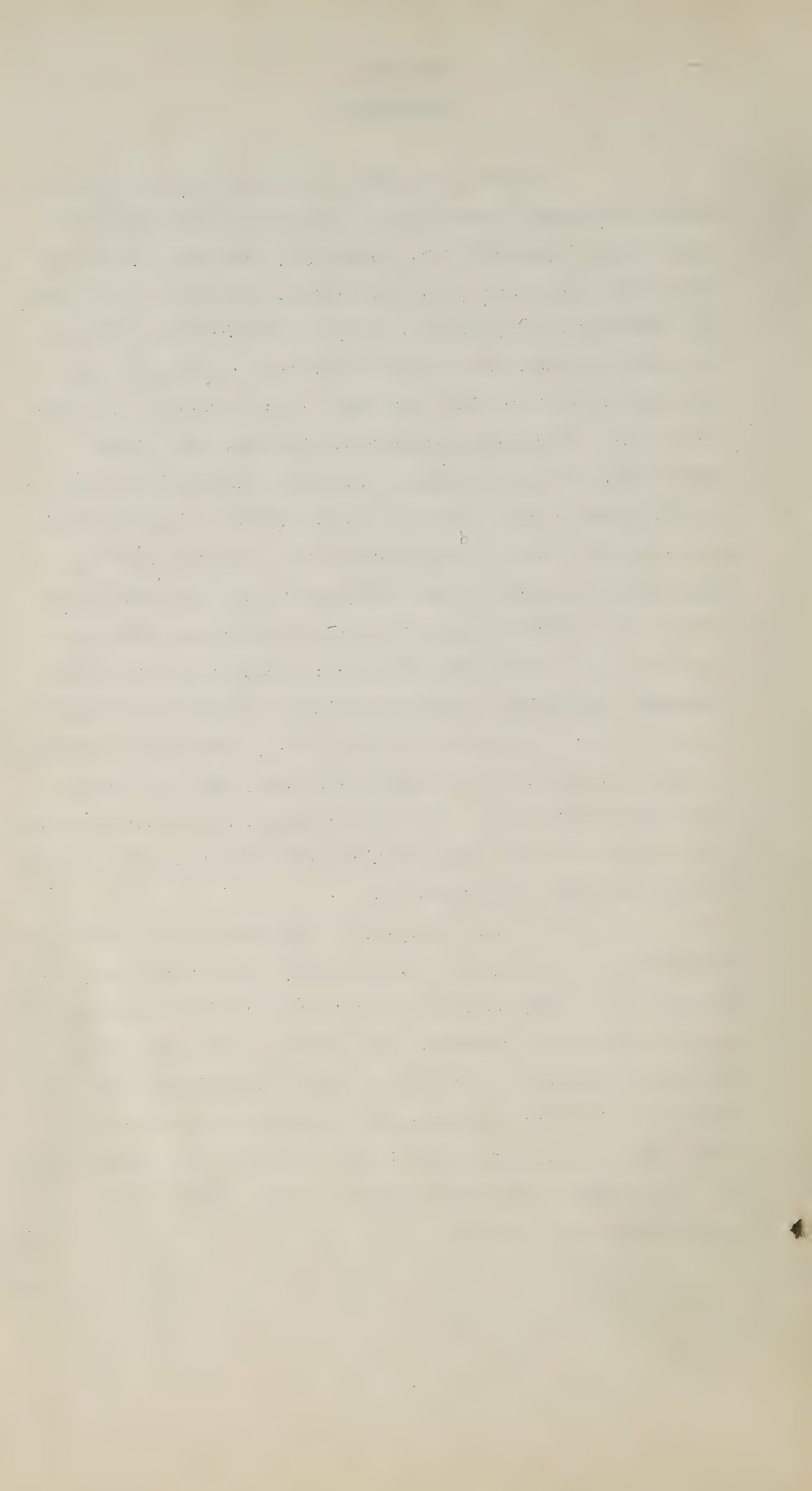
## CHAPTER 1

### INTRODUCTION

Land well adapted for wildlife should produce or harbour a permanent population of interesting species and an annual crop of game and fur. These are, therefore, the usual objectives in any recommendations concerning wildlife and wildlife habitats in a watershed. But the contribution which the Don Watershed can make to these objectives is very different from that of most similar watersheds in the Province. A large part of the watershed is already built up and has a dense population. The discharging of fire-arms is prohibited in 80 of its 140 square miles. Much of the remainder is owned by residents who work in the Toronto urban area and who enforce the laws against trespass. Legal hunting is therefore only available in the unposted parts of Vaughan and Markham Townships. Since these are designated as Regulated Townships for hunting purposes, the taking of game is strictly controlled by Township Licence as well as by the Provincial Acts. Hunting for pheasants is usually restricted to a controlled shoot open only two or three days in the year. The remaining game includes the cottontail and the European hare, of which the latter has been scarce in the watershed for some years.

The chief interest in the wildlife of the Don is therefore not in the game it can supply. Nor is the river large enough or of a character to supply a great deal of fishing. The Don Watershed does, however, still retain a fair proportion of woodlands and many of its ravines supply exceptional cover for wildlife. The obvious need in the watershed is to retain for every citizen the opportunity to see and enjoy the varied forms of birds, mammals and other wildlife of the region in the greatest possible variety.





## CHAPTER 2

### FORMER SPECIES

The animals found in the Don Watershed are a mixture of northern and southern species with ranges which overlap in this area from two of the major life zones of North America. The overlapping ranges in the watershed of the cottontail and field sparrow, more southern species, and the varying hare and northern waterthrush, more northern species, are typical examples of the transitional character of the fauna.

The country probably supported a maximum of game and the larger forms of wildlife a few years after it was first settled. The great variety of open and ungrazed woods, cleared fields and forest edges provided food and shelter for large populations. The cutting, burning and grazing of much of the remaining forest and intensive hunting and trapping have since then greatly reduced the wildlife populations.

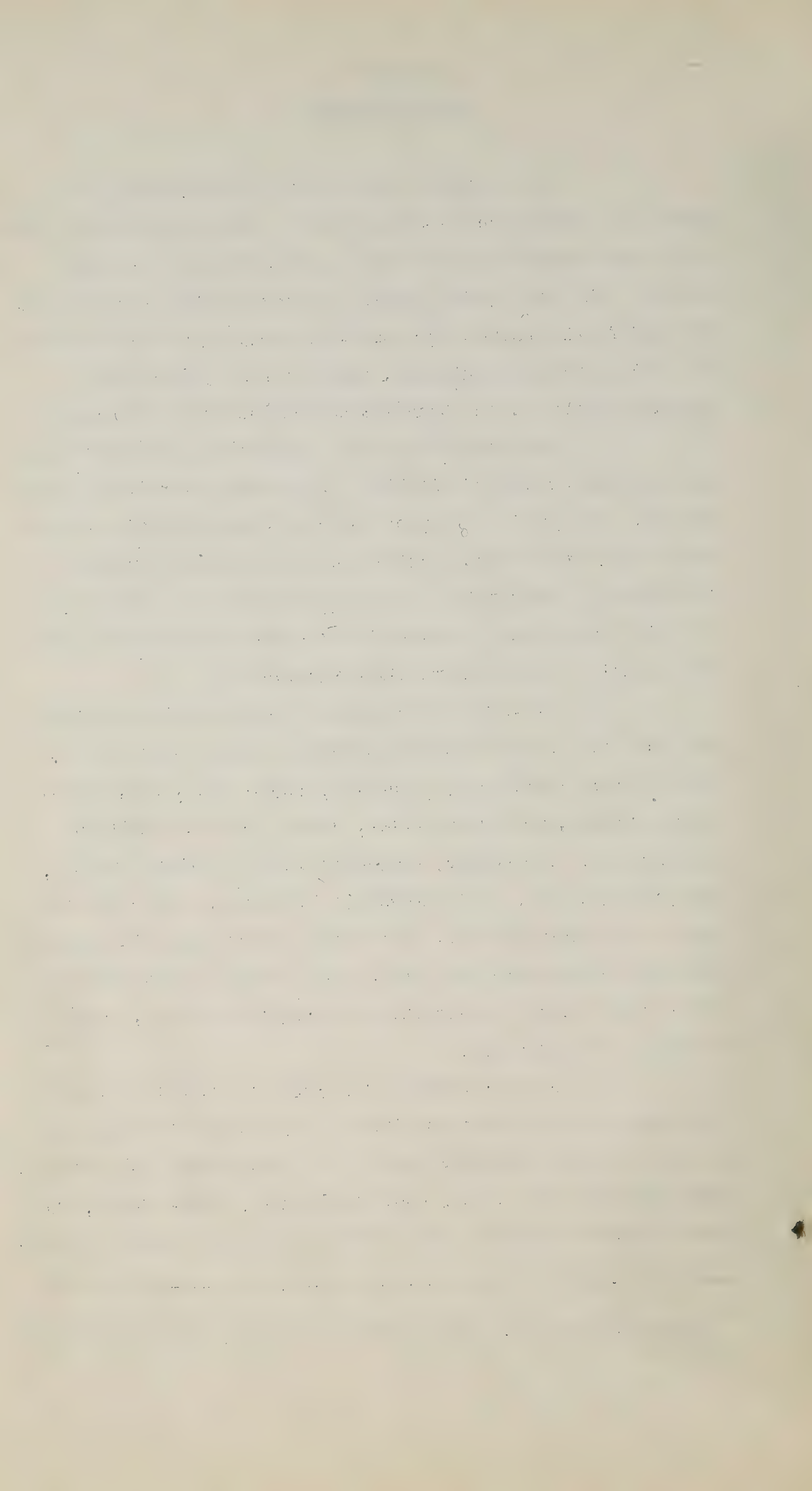
At least ten species of mammals which formerly must have been found in the watershed no longer occur in it. These include the beaver, porcupine, timber wolf, black bear, marten, fisher, wolverine, otter, Canada lynx and wapiti or American elk. The cougar, generally a more southern species, may have occurred in the watershed; the moose, a more northern species, probably did not. The bobcat or bay lynx, the varying hare and the porcupine may still occur rarely in the watershed. All of these must be classified as remnantal species, properly belonging farther north.

A few references to early literature will give an impression of the former conditions. "The upper valley of the Don was in 1821 a secluded spot in the rudest state of nature, a favourite haunt of wolves, deer and bears"<sup>1</sup>. Mrs. Simcoe, the wife of Governor Simcoe, made several references to the wildlife

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1.

Scadding, Henry J., D.D.: "Toronto of Old", published Toronto, 1873.



of the area, e.g. "We rowed some distance among low lands covered with rushes, abounding with wild ducks"<sup>1</sup>. This was probably a reference to Ashbridge's Bay, then a part of the Don drainage basin and at that time an area of very great importance to migrating and nesting waterfowl. Mrs. Simcoe mentions the presence of bald eagles on the Don and also mentions that "The flats on the Don were a favourite haunt of woodcock". There are also frequent references to both salmon and muskellunge in the Don River and its marshes, and to the passenger pigeon, which nested in several colonies in the watershed. This now extinct species, whose vast flocks astounded the early settlers, was still present in large numbers in 1870, declined steadily until 1880 and very rapidly thereafter. The last large flight reported in the Don Watershed occurred in 1877<sup>2</sup>. On that occasion the flock was said to be "half a mile deep and three or four miles wide" and passed over Todmorden from 7 a.m. to 1 p.m. By 1884 pigeons were rare in the watershed. Eleven were seen in Cedarvale ravine in 1896. These were the last to be reliably reported in the valley. The extinction of this species came as much from the clearing of land as from the intensive market shooting and trapping.

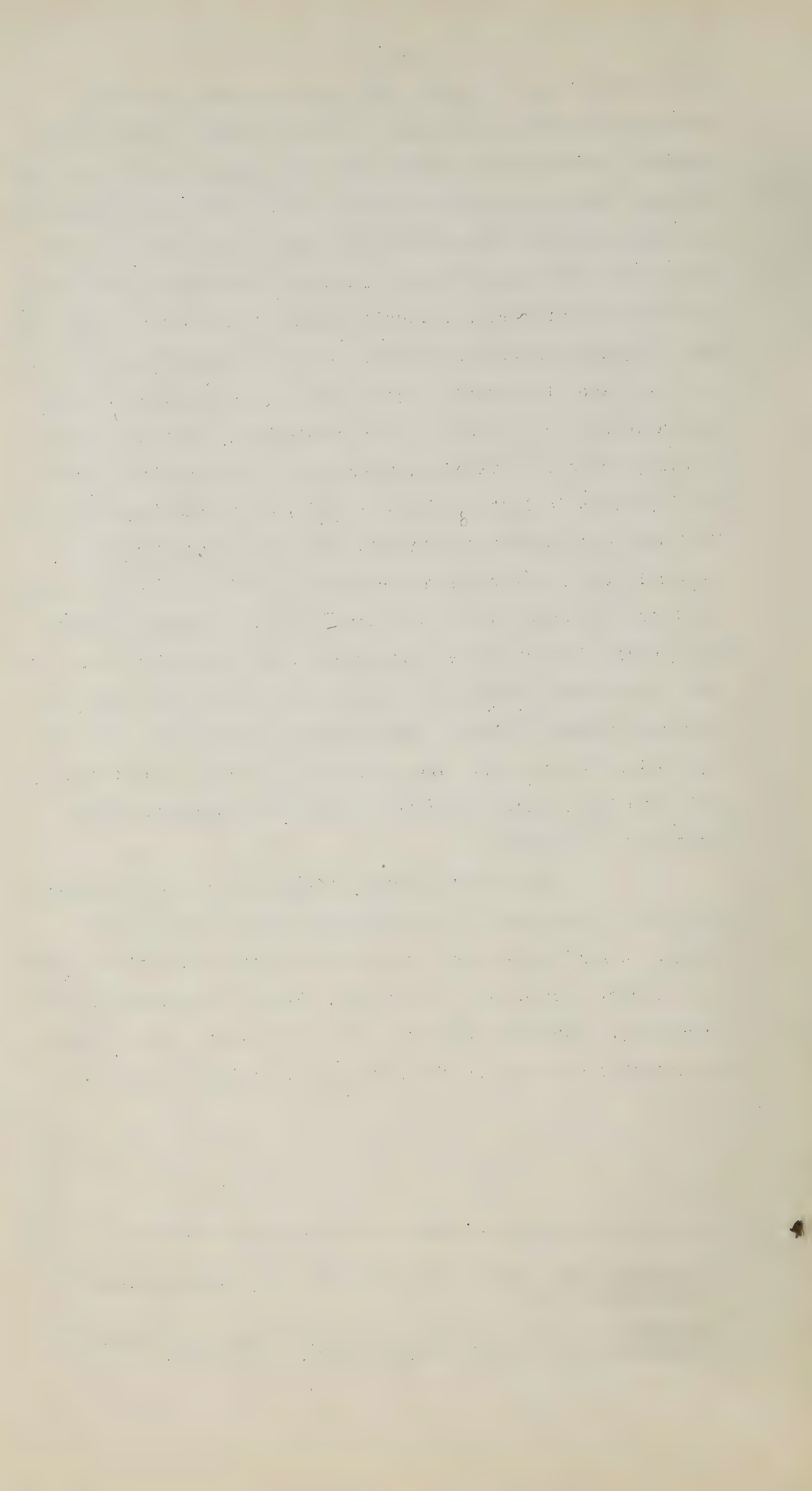
While most species of game and fur were steadily diminishing in numbers in the watershed as a result of the changes in habitat and the intensive trapping and hunting, such open country species as the red fox, skunk and cottontail were increasing. The last named had come in from the west or south and probably had been in the watershed less than 80 years.

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1. Robertson, John Ross: "Diary of Mrs. John Graves Simcoe" (1793-1796), 1911.

2. Mitchell, Margaret H.: "The Passenger Pigeon in Ontario", Contribution #7, Royal Ontario Museum of Zoology.





## CHAPTER 3

### PRESENT SPECIES

#### 1. Mammals

There was no intensive attempt during the survey to make a systematic collection of the smaller mammals of the watershed. The following list is therefore in part hypothetical. Species not taken or observed during the survey are included because there are other authentic records, or because their ranges surround the watershed and should obviously include it. The ten former species noted in Chapter 2 as no longer occurring in the watershed are not included in the list. Several of the bats listed may occur only in migration.

The arrangement and terminology of the list follow those in "A Provisional Check List of the Mammals of Ontario", by S.C. Downing, (Misc. Publication #2, Royal Ontario Museum of Zoology, Toronto, 1948). Mr. Downing was good enough to provide assistance in preparing the list.

Cinereous Shrew	<i>Sorex cinereus</i> Kerr
Smoky Shrew	<i>Sorex fumeus</i> Miller
Pigmy Shrew	<i>Microsorex hoyi</i> (Baird)
Mole Shrew	<i>Blarina brevicauda</i> (Say)
Hairy-tailed Mole	<i>Parascalops breweri</i> (Bachman)
Star-nosed Mole	<i>Condylura cristata</i> (Linnaeus)
Little Brown Bat	<i>Myotis lucifugus</i> (LeConte)
Long-eared Brown Bat	<i>Myotis keenii</i> (Merriam)
Silver-haired Bat	<i>Lasionycteris noctivagans</i> (LeConte)
Big Brown Bat	<i>Eptesicus fuscus</i> (Beauvois)
Red Bat	<i>Lasiurus borealis</i> (Muller)
Hoary Bat	<i>Lasiurus cinereus</i> (Beauvois) Rare.
European Hare (Introduced)	<i>Lepus europaeus</i> Pallas
Varying Hare	<i>Lepus americanus</i> Erxleben Not reported but may still occur rarely.
Cottontail	<i>Sylvilagus floridanus</i> (Allen)



Black or Grey Squirrel	<i>Sciurus carolinensis</i> Gmelin
Red Squirrel	<i>Tamiasciurus hudsonicus</i> (Erxleben)
Woodchuck	<i>Marmota monax</i> (Linnaeus)
Eastern Chipmunk	<i>Tamias striatus</i> (Linnaeus)
Eastern Flying Squirrel	<i>Glaucomys volans</i> (Linnaeus)
Northern Flying Squirrel	<i>Glaucomys sabrinus</i> (Shaw) Probably occurs.
Beach Mouse	<i>Peromyscus maniculatus bairdii</i> (Hoy and Kennicott)
White-footed Mouse	<i>Peromyscus leucopus</i> (Rafinesque)
Cooper's Lemming Mouse	<i>Synaptomys cooperi</i> Baird
Muskrat	<i>Ondatra zibethica</i> (Linnaeus)
Meadow Mouse	<i>Microtus pennsylvanicus</i> (Ord)
House Rat (Introduced)	<i>Rattus norvegicus</i> (Erxleben)
House Mouse (Introduced)	<i>Mus musculus</i> Linnaeus
Meadow Jumping Mouse	<i>Zapus hudsonius</i> (Zimmermann)
Porcupine	<i>Erethizon dorsatum</i> (Linnaeus) May still occur rarely.
Brush Wolf	<i>Canis latrans</i> Say
Red Fox	<i>Vulpes fulva</i> (Desmarest)
Raccoon	<i>Procyon lotor</i> (Linnaeus)
Ermine	<i>Mustela erminea</i> Linnaeus
Long-tailed Weasel	<i>Mustela frenata</i> Lichtenstein
Mink	<i>Mustela vison</i> Schreber
Skunk	<i>Mephitis mephitis</i> (Schreber)
White-tailed Deer	<i>Odocoileus virginianus</i> (Boddaert)

## 2. Birds

The birds of the Toronto area have been intensively studied for more than forty years. About three hundred species of birds live in or migrate through the watershed, but less than one hundred species remain during the summer to nest in the area. A few which are not summer residents visit the watershed in winter only. The following list of 88 species, based chiefly on records and observations of Stuart L. Thompson, should provide an almost complete list of the birds resident in the watershed in summer. L.L. Snyder, Assistant Director of the





Royal Ontario Museum of Zoology, was good enough to check the list. The arrangement and names follow those of Taverner's "Birds of Canada", 1934.

American Bittern	Long-billed Marsh Wren
Black Duck	Short-billed Marsh Wren
Sharp-shinned Hawk	Catbird
Red-tailed Hawk	Brown Thrasher
Red-shouldered Hawk	Wood Thrush
American Sparrow Hawk	American Robin
Ruffed Grouse	Wilson's Thrush
Virginia Rail	Red-breasted Bluebird
Sora Rail	Cedar Waxwing
Killdeer Plover	Common Shrike
American Woodcock	Common Starling
Spotted Sandpiper	Red-eyed Vireo
Mourning Dove	Warbling Vireo
Yellow-billed Cuckoo	Yellow Warbler
Black-billed Cuckoo	Oven-bird
American Screech Owl	Northern Water-Thrush
Great Horned Owl	Mourning Warbler
American Long-eared Owl	Maryland Yellow-throat
Short-eared Owl	Canada Warbler
Whip-poor-will	American Redstart
Nighthawk	English Sparrow
Chimney Swift	Bobolink
Ruby-throated Hummingbird	Eastern Meadowlark
Belted Kingfisher	Red-winged Blackbird
Yellow-shafted Flicker	Baltimore Oriole
Red-bellied Woodpecker	Crow Blackbird
Downy Woodpecker	Cowbird
Eastern Kingbird	Scarlet Tanager
Crested Flycatcher	Cardinal
Eastern Phoebe	Rose-breasted Grosbeak
Least Flycatcher	Indigo Bunting
Horned Lark	Common Purple Finch
Tree Swallow	American Goldfinch
Bank Swallow	Eastern Towhee
American Rough-winged Swallow	Savannah Sparrow
Barn Swallow	Grasshopper Sparrow
Cliff Swallow	Leconte's Sparrow
Purple Martin	Vesper Sparrow
Blue Jay	Slate-coloured Junco
American Crow	Chipping Sparrow
Black-capped Chickadee	Field Sparrow
White-breasted Nuthatch	White-throated Sparrow
House Wren	Song Sparrow
	Swamp Sparrow



## CHAPTER 4

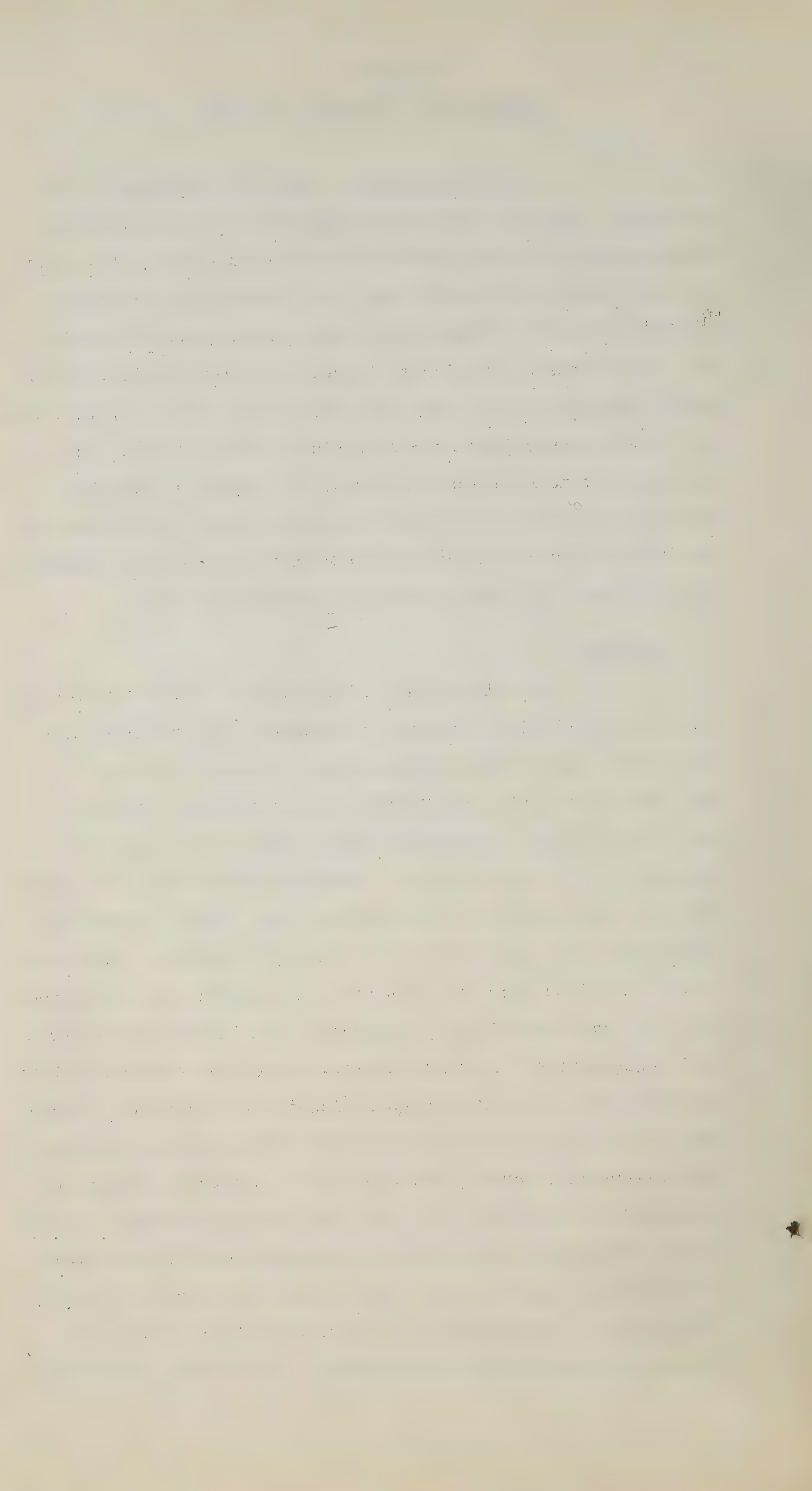
### IMPROVING THE FARM FOR WILDLIFE

Recommendations for specific improvements for individual farms in the Don Watershed would involve detailed examination beyond the scope of the present survey. Moreover the only farms which can be improved for wildlife are those where the farmer or landowner is interested himself in doing so. Many farmers may wish to improve land for wildlife quite apart from any revenue they may receive from game or fur; others may do so because they know that since pioneer times, and particularly near cities and towns, the supply of game has never yet exceeded the demand and is not likely ever to do so, and there is no reason why a farmer should not receive remuneration to cover his costs of wildlife improvement work.

#### 1. Woodlands

The elimination of grazing of woodlots would be the most useful single measure in improving the wildlife environment. Large-scale reforestation plans are included in the Forestry report. In plantations, up to about the tenth year from planting, the entire planted area is valuable for wildlife. But large blocks of coniferous trees will, at least after the twelfth year from planting, have little or no undergrowth and will, apart from their edges, be entirely sterile as far as upland game and most forms of wildlife are concerned. The chief improvements to be expected will therefore come from good management of the farm woodlot. Selective cutting is both sound forestry practice and good planning for wildlife. Landowners who have woodlots in which the crown canopy has closed over considerable areas, and who wish to produce a proper environment for wildlife, will find that release cuttings, slashings to stimulate sprout growth, thinnings and felling timber for sale will improve rather than retard the carrying capacity for wildlife. Construction of brush piles from cuttings is recommended where rabbits are desired, two or three such brush





piles per acre being the normal spacing.

## 2. Cultivation Practices

All good farming practices which make a more luxuriant vegetation will improve the farm environment for wildlife. A few special practices will give more specific benefits. Strip-cropping, described elsewhere in this report, is of particular value since by this means no extensive area is denuded of cover at one time by harvesting. In the less flat parts of the watershed, filter strips, either above water-diversion terraces or used as emergency waterways, provide travel lanes and nesting cover for wildlife. Cover crops such as the clovers provide a habitat and food for wildlife in areas that would otherwise be barren during the winter months. The elimination of brushy fencerows is now the rule rather than the exception on Southern Ontario farms. Those who are interested in wildlife improvement will find that the inclusion of a few field boundary hedges on the farm will moderate the effect of winds on crops, serve as travel lanes and cover for wildlife, and harbour large numbers of songbirds which help to control insect pests. *Rosa multiflora* is an excellent hedge-forming shrub. It has a tendency in Southern Ontario to die back in winter, but rapidly forms a dense hedge, which is reported to be proof against cattle and hogs. It provides both cover and food and does not exhaust the nearby cultivated ground.

## 3. Food and Cover Patches

Field corners are frequently barren of crops. Therefore a fence crossing which embraces the corners of four fields may be made into a haven for ground-nesting species by planting a few trees and shrubs and protecting them. It is important to rid such areas of useless weeds by crowding them out with useful species such as white sweet clover or the normal climax type of open vegetation which is bluegrass.

The watershed provides only fair territory for the Ring-necked Pheasant. With artificial winter feeding



pheasants can survive most winters, but periodic winter killing<sup>1</sup> of most of the population may be expected. There are several groups in the watershed who would like to see pheasants permanently established in the farmland at the northern end of the watershed. Pheasants which have to be fed at the barnyard can hardly be compared with ordinary wild game. In any case those who wish to farm the species should provide food patches to supplement the available diet of the scattered ragweed and other low plants. Short rows of standing corn or corn in shocks should be left close to good cover. Yellow corn is the more useful type because of its high vitamin "A" content. Buckwheat, soybeans and Japanese millet are also recommended. Disused and loose rolls of fence wire left at the edges of woodlands provide useful additional cover. It need hardly be added that any gullied area in which groups of evergreen trees are planted for erosion control is also of value to wildlife.

#### 4. Ponds and Streams

The importance of water to wildlife is often forgotten. Many farms have at least one low spot where a small amount of work with a scoop will provide a dam and a pond to provide nesting and feeding sites for water and marsh birds. If possible ponds for wildlife should be separate from those intended for cattle or for fish. Willow cuttings pushed in the ground around such a hollow will rapidly provide wildlife cover. New water areas will soon be invaded by aquatic plants, but additional species may have to be introduced. No extensive duck food studies have been made in Southern Ontario. Wild rice may be introduced, but since it is not well adapted to wide variations in water levels, being often sterile in fluctuating waters, it cannot be considered as certain to succeed. The idea has long been current, and is fostered by many sportsmen's organizations, that the planting of wild rice is the answer to the

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1.

Clarke, C.H.D. and R.D. Braffette: "Ringnecked Pheasant Investigations in Ontario 1946". Department of Lands and Forests, Ontario.





problem of how to attract ducks to any area. The fact is that wild rice is of little significance to ducks in Canada except in the fall, and does not provide good cover or nesting sites. The following species which may be easily obtained are recommended as certain to be valuable duck foods. If none of them occur in ponds or shallows with good cover for ducks they can be introduced.

Sago Pondweed	( <i>Potamogeton pectinatus</i> L.)
Clasping-leaved Pondweed	( <i>Potamogeton perfoliatus</i> L.)
Wild Millet	( <i>Echinochloa Crusgalli</i> (L) Beauv.)
Japanese Millet	( <i>Echinochloa frumentacea</i> (Roxb.) Link)
Wild Celery	( <i>Vallisneria spiralis</i> L.)
Knotweed	( <i>Polygonum pennsylvanicum</i> L.)
Smartweed	( <i>Polygonum muhlenbergii</i> (Meisn.) Watts)
Bulrush	( <i>Scirpus americanus</i> Pers.)
Bulrush	( <i>Scirpus acutus</i> (Muhl.)

Those who are interested in farm ponds for wild-life will find very useful details of the various types of pond and methods for constructing each type in the chapter on Farm Ponds in the Land Use section of this report.



## CHAPTER 5

### SPECIES OF SIGNIFICANCE TO AGRICULTURE OR FORESTRY

While many species are of some importance to agriculture or forestry, the two which appear of greatest importance are discussed here. These are the European hare and the meadow mouse.

#### 1. The European Hare

##### (a) Distribution

Considering Ontario north and east to the Parry Sound district, the European hare or "jack rabbit" (*Lepus europaeus* Pallas) is the most important small game animal in the Province. Following its original introduction into Ontario near Brantford in 1912<sup>1</sup>, the species has come to occupy almost all the agricultural sections of the Province.

The date of its arrival on the Don Watershed was apparently about 1925. Snyder and Logier<sup>2</sup> reported that the hare had reached King Township, York County, by February, 1925, and was quite common there in December, 1927.<sup>3</sup> Dymond reported that the species had reached Simcoe County at Tottenham and Ontario County at Markham and Uxbridge, by 1928.

##### (b) Habitat Requirements

The European hare is an animal of the open country where extensive fields, pastures and scattered woodlands abound in a topography of low rolling hills. Although sparse, grazed hardwoods probably are not essential, they are much frequented, especially during periods of extreme heat and drought in midsummer. A supply of drinking water does not seem to be required.

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1. Dymond, J.R. - 1922. The European Hare in Ontario. Canadian Field Naturalist, 36(8):142-143.
  2. Snyder, L.L., and E.B.S. Logier - 1930. A Faunal Investigation of King Township, York County, Ontario. Transactions Royal Canadian Institute, 17(2):167-208.
  3. Dymond, J.R. - 1928. The Present Range of the European Hare in Ontario. Canadian Field Naturalist, 42:95.



1890

1891

1892

1893

1894

1895

1896

1897

1898

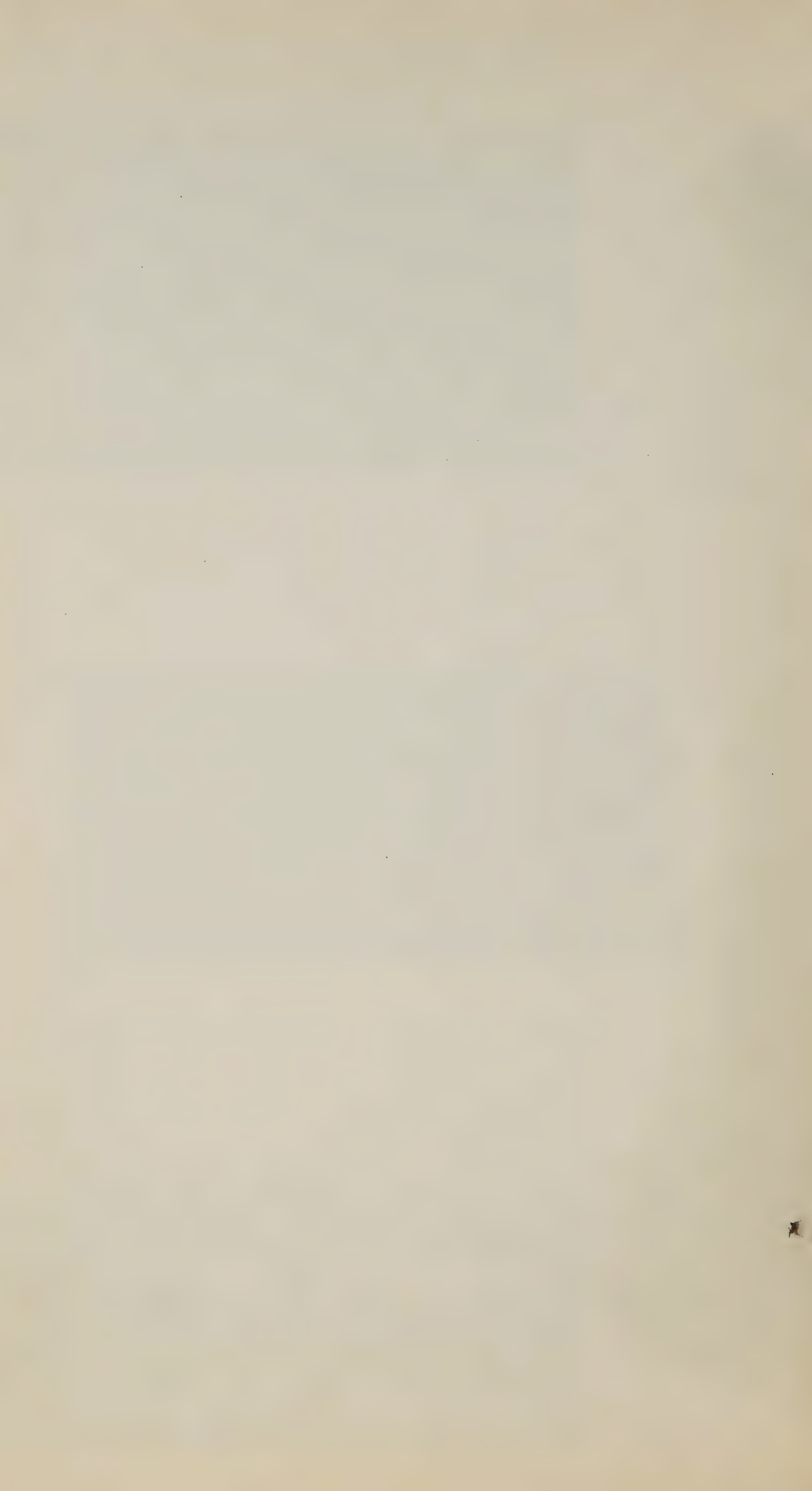
1899



These two views of farm land in North York Township show the present trend towards farms with clean fences and little wildlife cover. Such land provides fair territory for the European hare but for little other game.



This pond at Sheppard Avenue near Dufferin Street was the last remaining pond in the North Toronto region where, as late as 1949, grebes, black ducks, muskrats, painted turtles and many other interesting species made their homes. It is scheduled to be filled in in 1950.





Only the northern half of the watershed can be considered to contain good hare range. All the southern section and also a strip of varying width along both sides of Highway No. 11, are so heavily built up that these regions are almost totally untenable to the hare - a condition that is rapidly increasing as industrial and housing projects extend the built-up areas. Elsewhere on the watershed the open farming lands appear well suited to this mammal.

(c) Present Status

During four weeks of field work (May 24 to June 20, 1949) hares were recorded 14 times. The localities were widely scattered throughout the watershed, and in each case only single hares were seen, with the exception of four observed on several occasions in Lot 26, Concession II, Vaughan Township, York County.

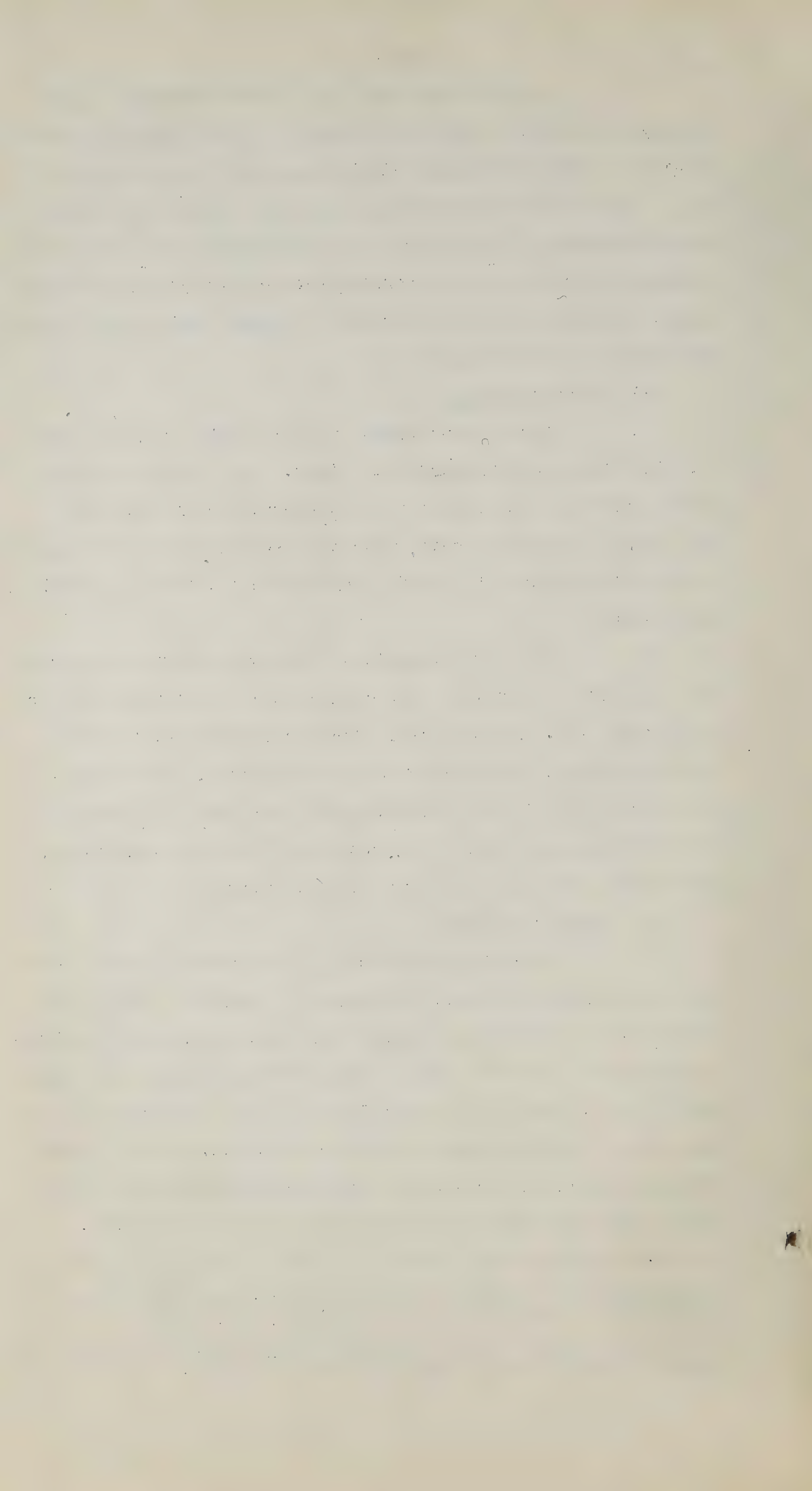
With few exceptions, everyone interviewed agreed that the hare is now much less common than it was about six or eight years ago. Reasons given for the decline included excessive hunting, predation by foxes and skunks, and disease. Middleton<sup>1</sup> and Siivonen<sup>2</sup> have demonstrated that the European hare fluctuates at three- and four-year intervals in England, but no such study has been made in this country.

(d) Hunting Pressure

Since the conclusion of World War II there has been a tremendous increase in hunting in Ontario. During the war shortages of hunting equipment and transportation facilities as well as the entry of many of the potential hunters into the Armed Forces, necessarily curtailed hunting. The immediate post-war era has quickly dispelled these conditions, and the normal stream of hunters has been swelled by many ex-servicemen whose wartime services acquainted them with the use of firearms.

- 
1. Middleton, A.D. - 1934. Periodic Fluctuations in British Game Population. Journal of Animal Ecology, Vol. III.
  2. Siivonen, Lauri - 1948. Structure of Short-cyclic Fluctuations. Finnish Foundation for Game Research, Helsinki.





Aided by changing labour codes, designed to increase free time available for recreation, an unprecedented number of hunters now takes to the field each fall and winter.

Sportsmen bent on taking "jack rabbit" fall roughly into two classes: (1) those who participate in organized "jack drives", and (2) small parties of up to five or six hunters.

(1) Jack drives

Jack drives are regularly organized by several of the large gun clubs in and around Toronto and by sporting-goods equipment firms in the city. As many as 150 to 200 hunters sometimes participate in these drives. Immediately after the war there were enough hares in and around the watershed of the Don to make drives through this area worthwhile, but they are now so scarce that large-scale drives are no longer profitable. The many private estates posted against hunting also tend to limit the activities of drives.

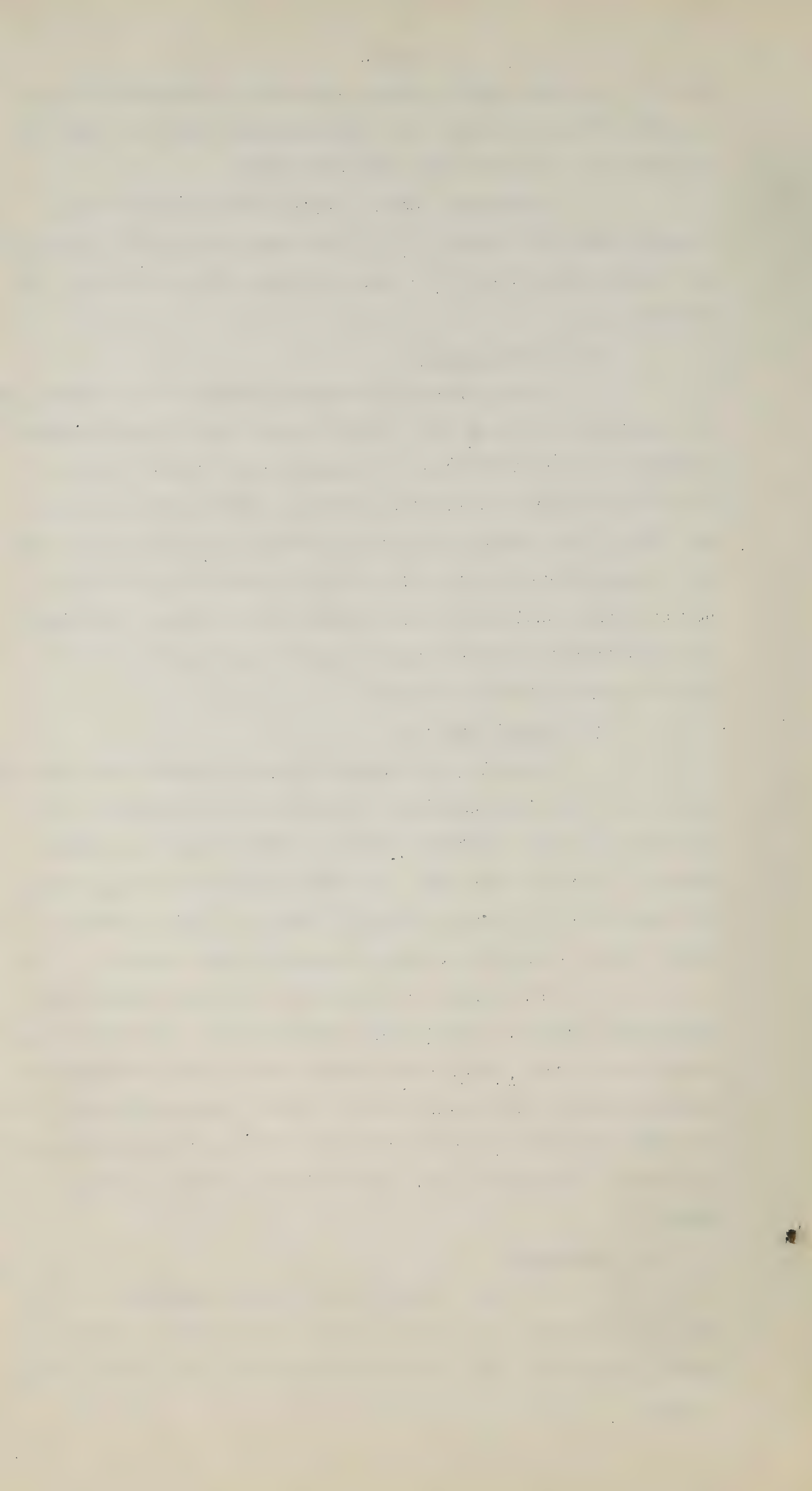
(2) Small parties

Scorning the regimentation and what they consider to be the "organized slaughter" that frequently accompany the jack drives, many sportsmen prefer to hunt alone or in small parties. For the most part they find the best hunting in more or less restricted areas either too small for the drives to bother about or located between adjacent posted lands.

The result of this sort of hunter coverage is that only extensive posted lands and Crown Game Preserves escape being hunted over. Even these suffer extensively, because the hunters permit their dogs to range through large sections of the preserves to drive the hares out into the adjoining country, and many owners of posted lands permit limited hunting on their lands.

(e) Predation

The only predators potentially important on the Don are red foxes and possibly skunks. A few others, such as great horned owls, are present in numbers too small to be significant.



Many people who were interviewed blamed foxes for the decline of hares, but in a large series of bones collected about the entrances of fox dens no hare remains were identified. Foxes were reported to be common all over the northern half of the watershed.

The impact of skunks on the hare population was found especially difficult to assess. Skunks were present in large numbers over all but the most densely populated sections of the watershed. Presumably they would take young hares if the opportunity were presented, but the extreme precocity of hares from birth should largely preclude this hazard.

(f) Crop Damage

Too few European hares are now present on the Don Watershed to be of any importance as far as damage to crops is concerned. From approximately 1930-1943, when appreciable numbers of hares were present, damage to truck gardens and orchards was reported to be high. It is now negligible.

That the species is potentially a menace to fruit trees, especially in years of very deep snows, is indicated by the classical report of Silver<sup>1</sup> who wrote: "Every tree in one orchard of 200 5-year old apple trees in one orchard was badly damaged, and it was estimated that the losses in Dutchess County (New York) alone during the winter of 1915-16 exceeded \$100,000".

Individual wire mesh guards at least three feet high are recommended for the protection of small orchard trees, but these are useless in winters of very deep snows when the hares can travel on top of the snow and reach the unprotected parts of trees. Repellent washes applied to the trunks and branches<sup>2</sup> are suggested by Hamilton, but few are satisfactory.

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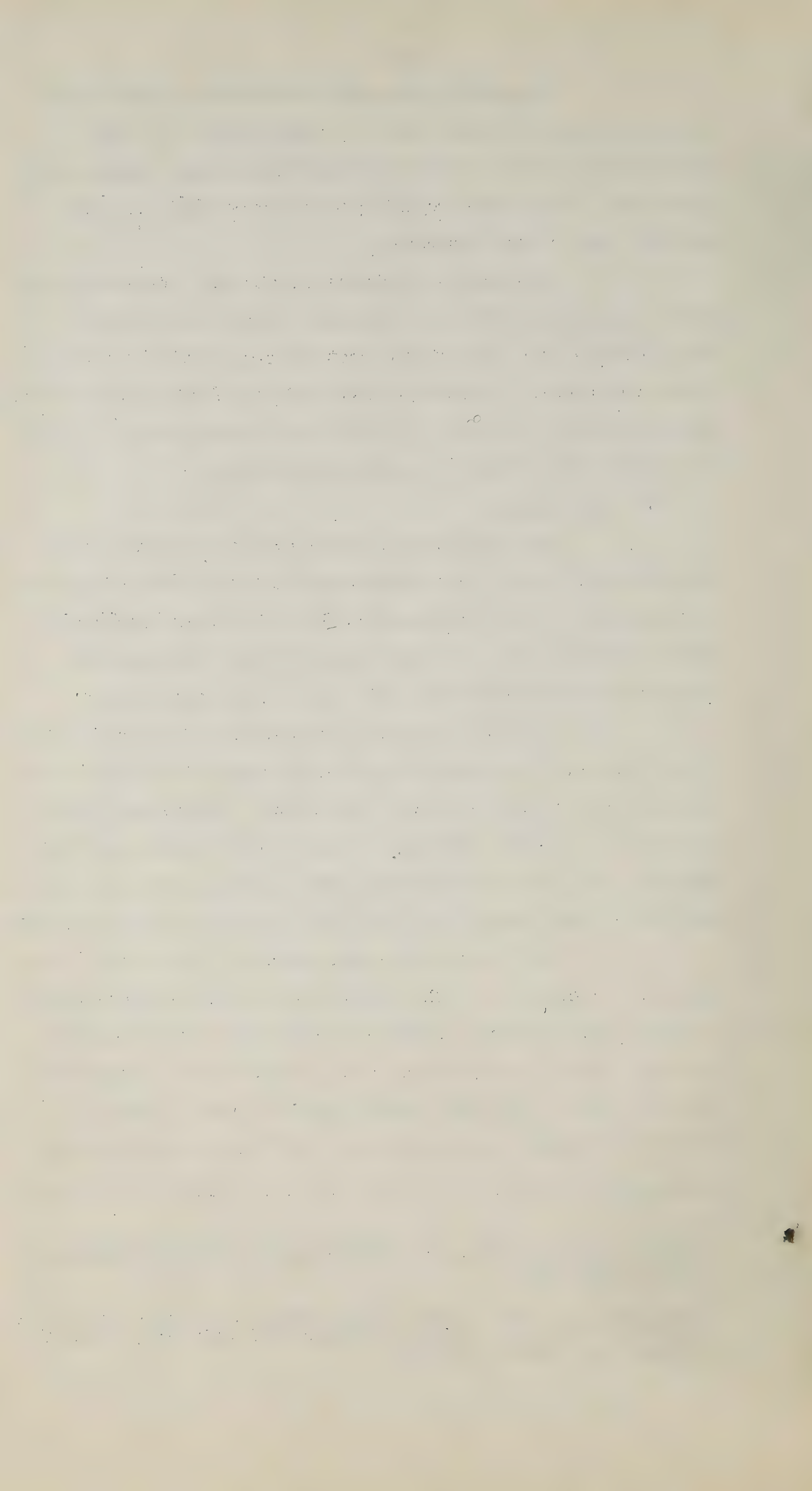
1.

Silver, James - 1924. The European Hare (*Lepus europaeus* Pallas) in North America. *Journal of Agricultural Research*, 28(11):1133-1137.

2.

Hamilton, W.J., Jr. - 1935. Field mouse and Rabbit Control in New York Orchards. *Cornell Extension Bulletin* 338, Cornell University, Ithaca, New York.





"Soapsuds, grease, paint, whitewash, lime-sulfur, blood, oils and a lot of other paints and washes, have been used with varying success or none at all". Much investigation into this subject requires to be done. There is therefore a need for continued research to discover adequate repellent washes for the protection of orchard trees.

## 2. The Meadow Mouse

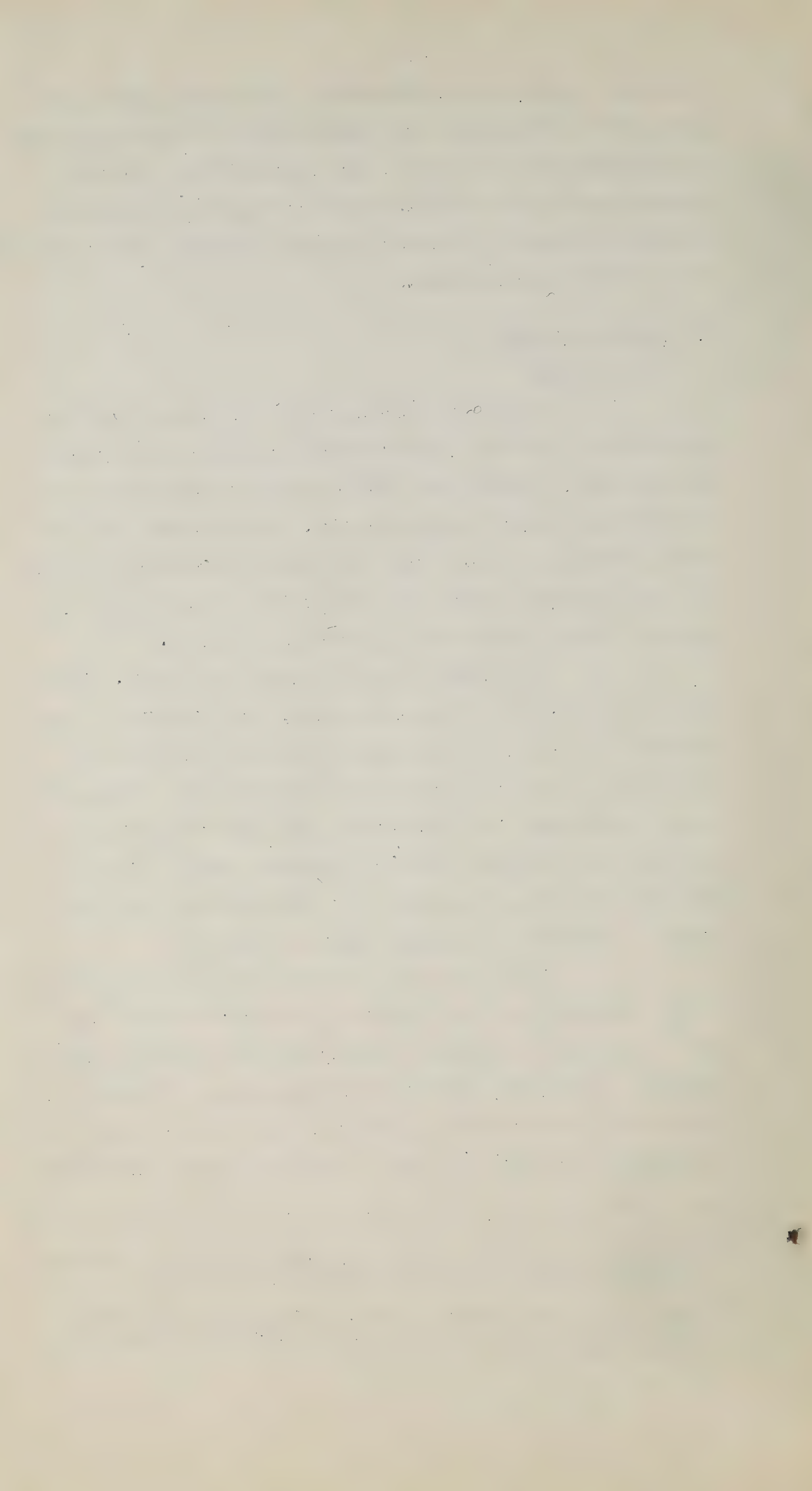
### (a) Status

Most people are aware of the damage which the meadow mouse (*Microtus pennsylvanicus*) can inflict on young orchard trees. Meadow mice can also destroy young trees in reforestation projects and nurseries. Both hardwood and softwood plantations are affected. In times of abundance the mice will eat the bark, leaves and small twigs of almost any tree species, usually destroying the trees by girdling.

One example should indicate the danger. In the winter of 1947-8 on a farm near Exeter, Huron County, 95 per cent of the trees in a plantation of 25 acres of pine were girdled and killed in a few weeks by meadow mice. Similar devastation took place in a plantation some eight miles west of the Don Watershed in 1944. Since considerable areas of the Don Watershed are being recommended for reforestation, the possibility of meadow mouse damage cannot be ignored.

Indications of four-year cycles in the population<sup>1</sup> of this species have been reported from New York State<sup>2</sup> and Ohio. Records of the Royal Ontario Museum of Zoology show no signs of a widespread uniform population cycle in Ontario. It seems more probable that in Ontario at least the critical factor in population changes may vary in different years. It may be

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1. Hamilton, W.J.: "Field Mouse and Rabbit Control in New York Orchards", Cornell Extension Service Bulletin 338.
  2. Bole, B.P.: "The Quadrat Method of Studying Small Mammal Populations", Science Publications of Cleveland Museum of Natural History No. 4.



any one of a number of climatic factors such as the depth of snow, occurrence of freezing rain, or some other factor such as predator abundance, food supply and disease. Examination in the spring of 1949 of several areas in the Don Watershed which would normally support fair populations of meadow mice indicated that the species was scarce. It seems that it is always improbable that a large population of meadow mice will be built up in the summer and will continue to breed in the fall and survive until snow is deep on the ground. But when this does happen any plantation which is overrun will be decimated. There is no doubt that to reforest any area having long grass and weeds without protecting it from meadow mice by some means is to invite disaster. A dense mat of tall grasses or sedges is the preferred range of the meadow mouse. Both idle, poorly drained sand lands and muck areas covered with willow scrub or similar vegetation can support large populations. Plantations on well drained sandy slopes are also vulnerable if they adjoin low areas of long grass and sedges. There are several areas of land of this type in the proposed Don Valley Forest.

(b) Control Measures

Protection of the trees until they are 8 to 10 years old will probably in the long run prove to be more satisfactory than attempts to kill all the mice. A proper balance between the numbers of mice and of their predators would also help to prevent the mice from increasing too quickly. The protection of natural predators, such as hawks, owls and foxes, is therefore one of the simplest and cheapest aids to control of mouse populations. Control measures involving protection of the trees include:

- (1) Clean cultivation of the ground prior to planting.
- (2) Cutting and removal of grass, at least semi-annually, in areas where mice are present.
- (3) Repellents.





Laboratory tests<sup>1</sup> have already suggested a number of compounds which successfully repel rats. Further tests under natural field conditions will have to be carried out on the most promising of these repellents in order to evaluate their efficiency against the meadow mouse, and to ensure that those selected for production would not be toxic to the trees in plantations.

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1. Roadhouse, L.A.C.: "Rodent Repellent Studies", Research Council of Ontario, Report 3-3-49, October 1949.



## CHAPTER 6

### FISH

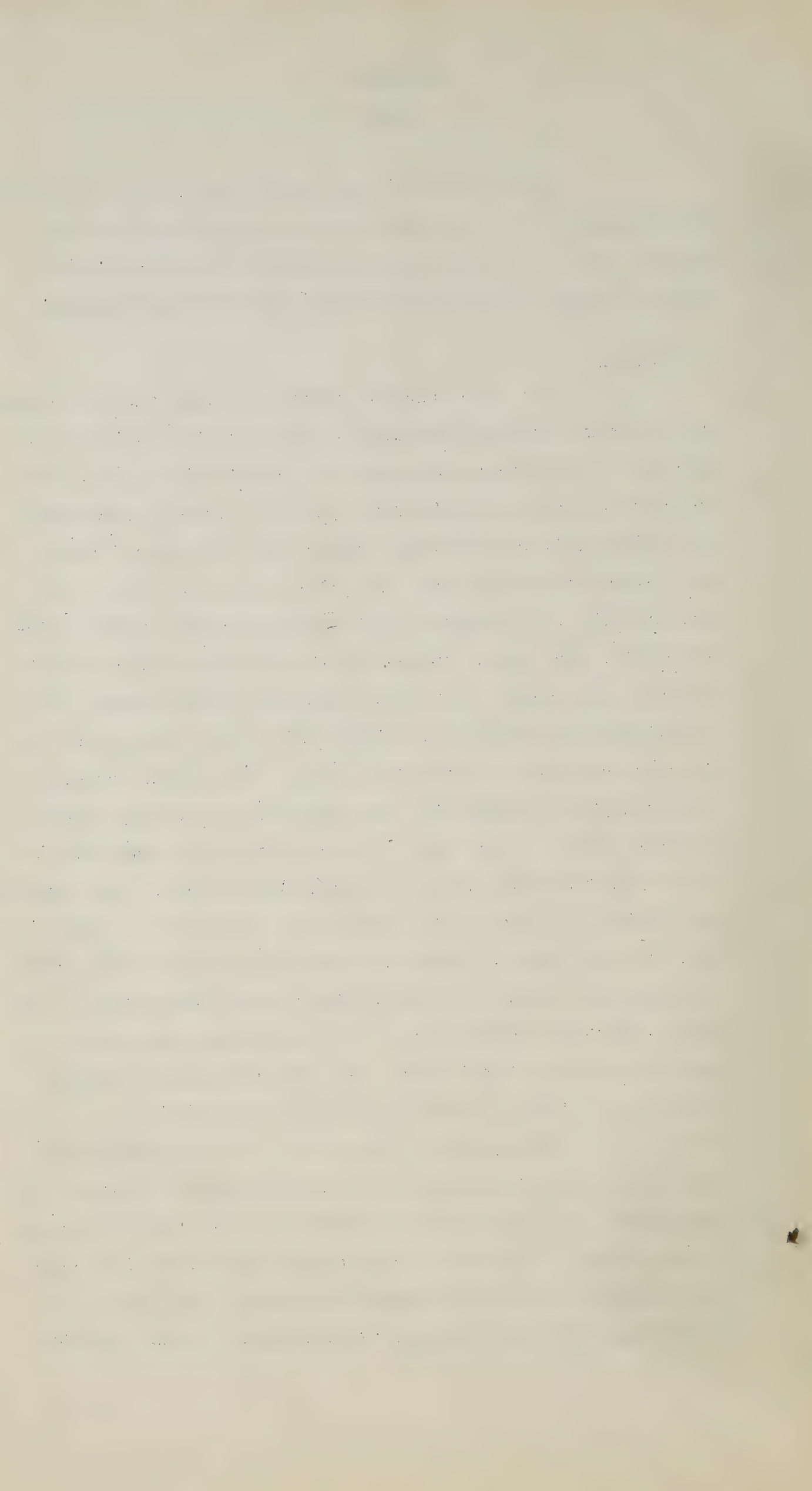
The purpose of this survey was to make a preliminary examination of the waters of the drainage basin and to classify them as to their present suitability for fish, and secondly to make recommendations for possible improvements.

#### 1. Methods

The river and its tributaries were visited at 113 stations corresponding generally to the crossings of the river by roads. The stations were from one to two miles apart. The topographic features of the valley and the erosion, vegetation and volume of flow, turbidity, temperature and type of bottom were listed at each station. At all stations not dry at the time of visit, collections of the aquatic insects and other invertebrates were made. At many of the stations collections of fish were also made. The collections were later examined and classified, and were used in zoning the various sections of the river as shown on the accompanying map. The aquatic insects such as mayflies, stoneflies and caddisflies were most useful for this purpose, since many of them are reliable indicators of the stream conditions at the critical time of year. Some species are confined to waters which remain cold and clear in summer, such as trout waters. Others are indicators of permanent flow or of polluted water or of the maximum summer temperature of the water. Thus the potentialities of a stream for particular species of fish are indicated. The fish collections substantiated these findings at their particular stations.

The procedure here adopted follows exactly that used in previous river surveys by the Department of Planning and Development and allows close comparisons of the characteristics of many rivers. The present criteria and methods evolved from more intensive year-round research carried out on parts of the Nottawasaga River and Algonquin Park streams, already reported







TORONTO  
HARBOUR



L A K E O N T A R I O



1,2,3, on and from other unpublished research data made available for this work. The present survey was carried out early in the year and each station could only be examined once. It was therefore necessary to rely on deductions from the presence or absence of species which extensive previous tests have shown to be reliable indicators.

## 2. The River Valley

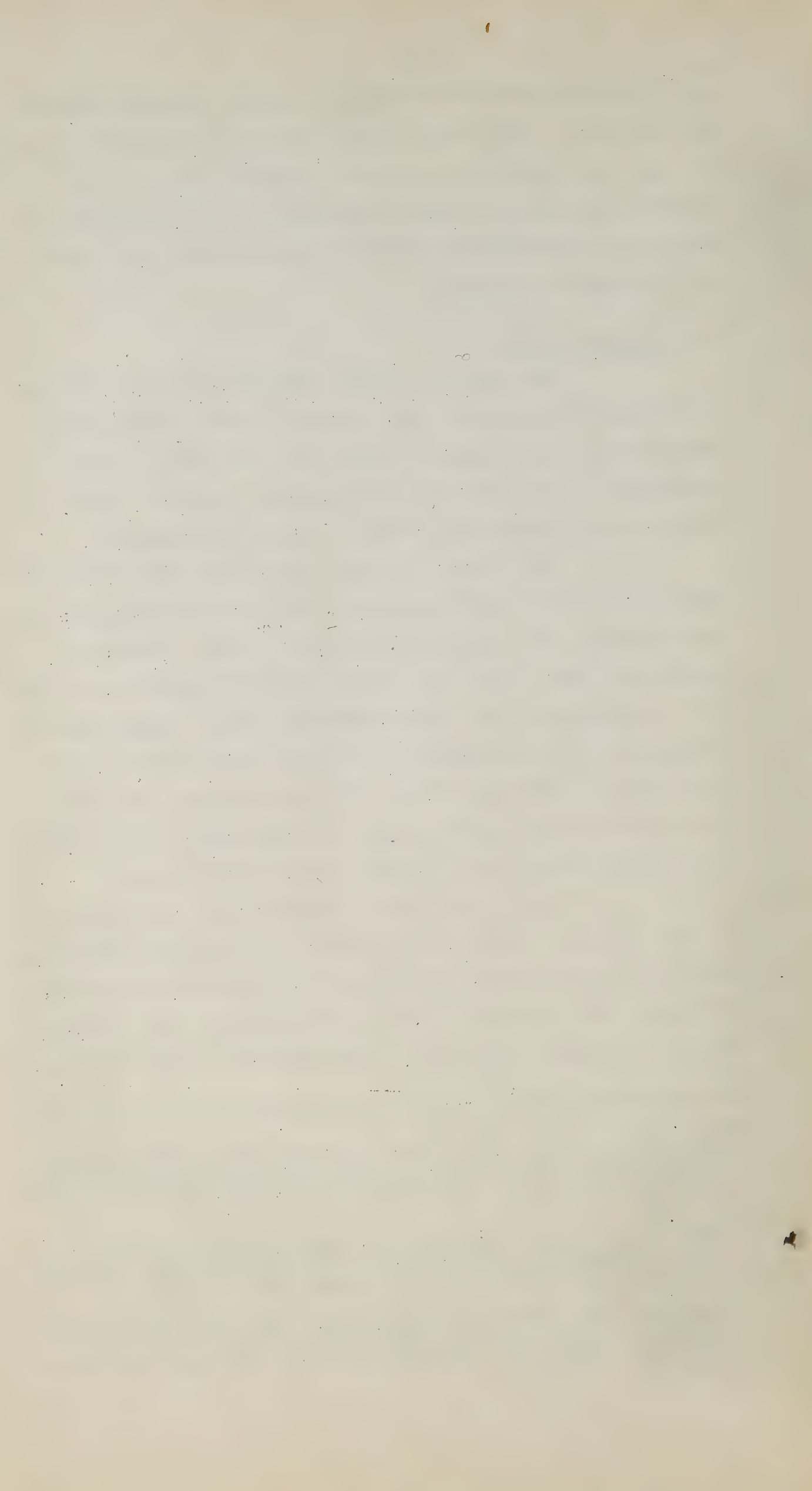
The conditions which determine the kinds of fish inhabiting a river are in part a product of the physiographic conditions of the watershed. These are described in detail in the chapter on Physiography in the General section of this report. A few significant points may here be emphasized.

The two main branches of the Don River rise near Maple and Richmond Hill respectively and run parallel almost to their junction near the Thorncliffe race track. These are known as the West Branch and the East Branch respectively. They are of approximately the same length but differ considerably in character. The West Branch has few good spring sources and a relatively insignificant volume of flow in summer. The East Branch has many good spring sources in the gravel hills of the interlobate moraine and maintains a fair flow in summer.

Most of the upper tributaries run in shallow "young" valleys. Lower down the valley the river has sharply and deeply dissected the till plain to a depth averaging about 110 feet. The gradients of the two branches are very similar. The fall of each is more than 40 feet per mile in the first two

- 
1. Ide, F.P. - 1935: "The Effect of Temperature on the Distribution of the Mayfly Fauna of a Stream", University of Toronto Studies, Biology 39, Publication Ontario Fish Research Laboratory 50.
  2. Ide, F.P. - 1940: "Quantitative Determination of the Insect Fauna of Rapid Water", University of Toronto Studies, Biology 47, Publication Ontario Fish Research Laboratory 59.
  3. Sprules, W.M. - 1947: "An Ecological Investigation of Stream Insects in Algonquin Park, Ontario", University of Toronto Studies, Biology 56, Publication Ontario Fish Research Laboratory 69.





miles from the source, levelling off to 30 feet per mile for the next ten miles, and thence averaging 17 feet per mile to within five miles of the lake. The last five miles consist of meanders and a few rapids in the wide bottom lands, and the fall is about 6 feet per mile in this sector. Extensive slow sections are rare except in the last five miles. The last two miles of river close to the lake are "canalized" with concrete or wood retaining walls. The gradients are described in greater detail in the Water section of this report.

### 3. Permanence of Flow

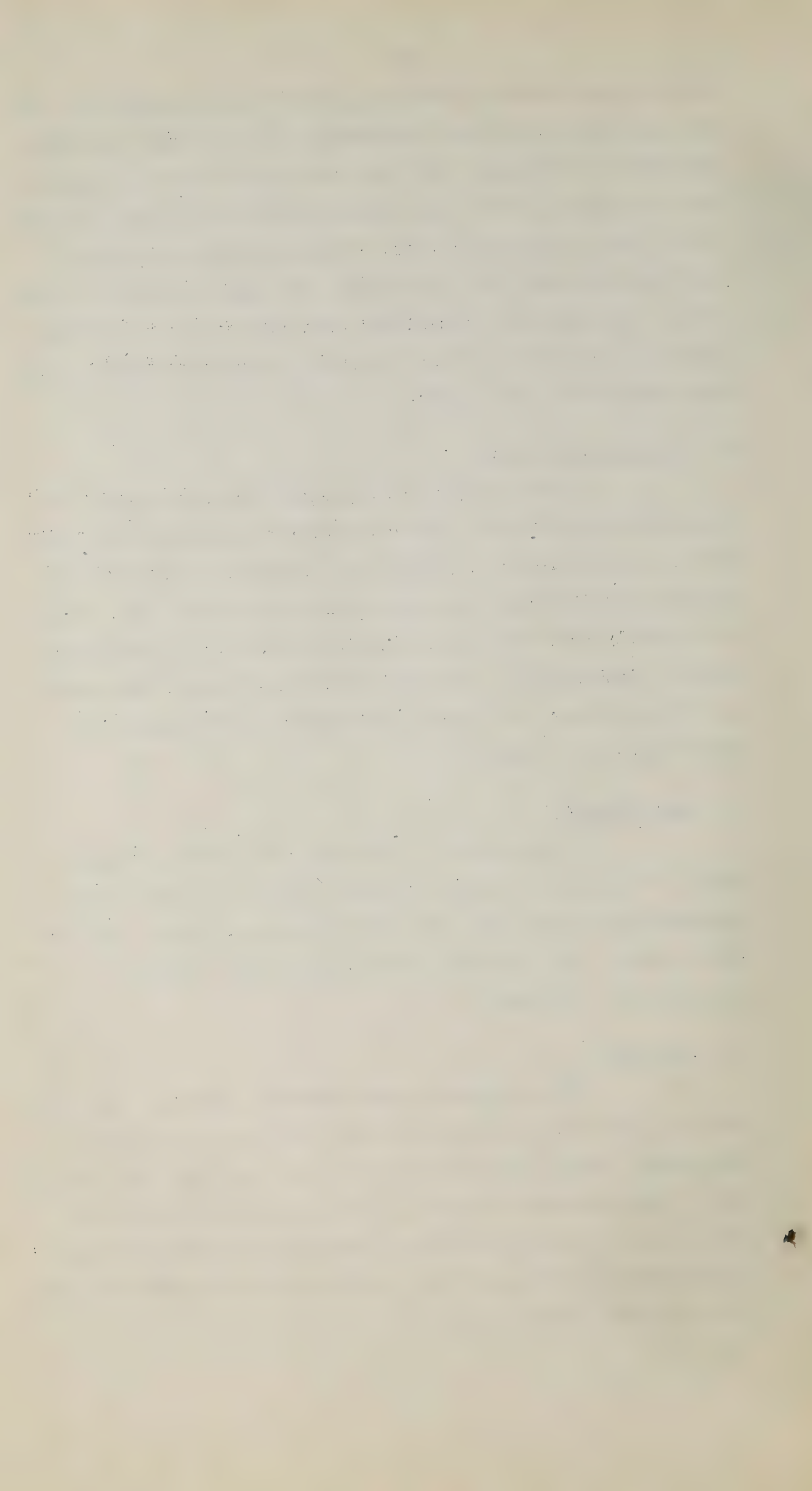
The accompanying map shows the large number of tributaries which supply little but surface drainage from level land and therefore dry up completely in summer. The permanent spring-fed tributaries are indicated in blue on the map. These come chiefly from the gravelly hills of the moraine north and west of Richmond Hill. Several tributaries are fed into underground pipes near the Toronto city limits and the water is passed into storm sewers.

### 4. Bank Erosion

Bank erosion is probably not a serious factor except locally in the Don, but since the soil of most of the watershed is a clay loam, the river tends to be turbid and the bottom silty, apart from the sandy and gravelly headwater streams north of Maple.

### 5. Pollution

The accompanying map shows the parts of the river which are seriously affected as a fish habitat by pollution. The present severe pollution of the Don and the plans to overcome it are discussed in detail in the Recreation section of this report. While considerable industrial pollution occurs, it is insignificant compared with the effects of the effluents from six overloaded sewage plants.





## POLLUTION

The outlet of the North Toronto sewage plant at Leaside into the Don River. For its size, the Don is the most heavily polluted river in the Province.



The same spot as shown above, showing the same outlet under water in May 1950. In this kind of flood the effluent is spread far and wide over the valley.



The lower reaches of the Don are fouled by both industrial and sewage wastes and are not suitable for fish.





## 6. Fish Distribution

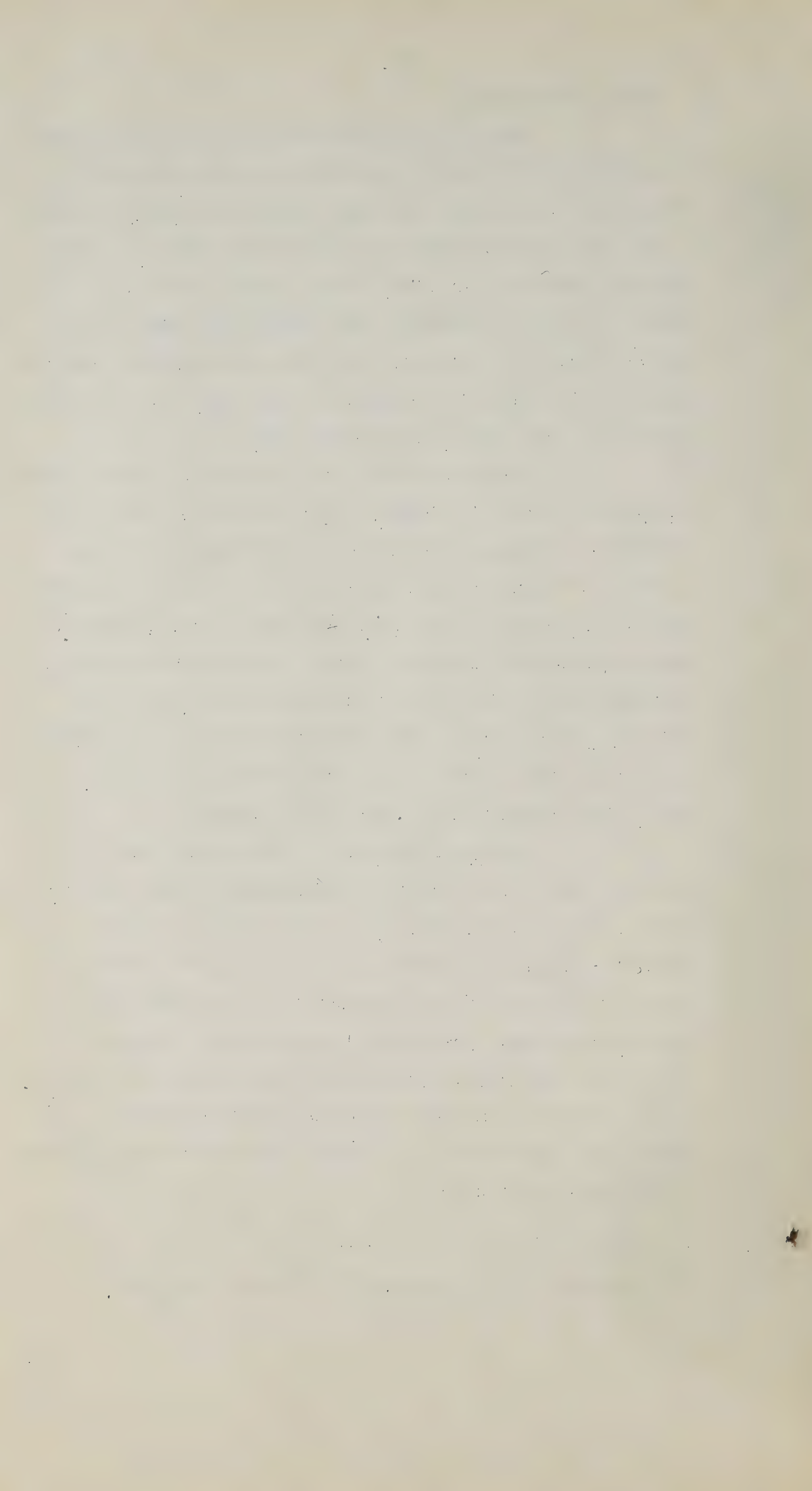
As a fishing stream the Don is no longer very productive; but in former times the fish were a valuable resource. A fine salmon fishery, "enough to support a number of families", was included in a description of a farm near Thornhill advertised in 1798. Mrs. Simcoe<sup>1</sup> attended an evening of salmon spearing at the mouth of the Don by the light of birch bark torches, and also watched muskellunge and pickerel being taken through holes in the ice. All of these species are long since gone from the Don.

The accompanying list includes 17 species taken in the river during the survey. The fishing is now chiefly restricted to suckers and chub with occasional sunfish and mudcats. There are several species not listed which probably still occur locally in the Don, such as pike and rockbass. Speckled trout were found in some of the headwater streams, but these are chiefly in privately held areas and are not available to the public. The alewife, a fish of the Great Lakes, was taken in the Don near the mouth of the river. Most of the remaining fish species are minnows.

The great decline in the productivity of the Don River is no doubt due to a combination of many factors. These include the construction of dams, preventing the movement of migratory species; the reduction in minimum volume of flow due to the destruction of woodlands and to faulty agricultural practices; the increase of clay and silt in the river; the severe pollution of parts of the river; and alterations in maximum summer water temperatures. Over-fishing was probably also a factor, particularly with respect to the land-locked salmon.

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1. Scadding, The Rev. Henry: "Toronto of Old", 1873.



LIST OF FISHES ON THE DON WATERSHED<sup>1</sup>

Alewife	<i>Pomolobus pseudo-harengus</i> (Wilson)
Eastern speckled trout ★	<i>Salvelinus fontinalis</i> (Mitchill)
Common white sucker ★	<i>Catostomus commersonnii</i> (Lacepede)
Creek chub; horned dace ★	<i>Semotilus atromaculatus</i> (Mitchill)
Longnose dace	<i>Rhinichthys cataractae</i> (Valenciennes)
Blacknose dace	<i>Rhinichthys atratulus</i> (Hermann)
Redbelly dace	<i>Chrosomus eos</i> Cope
Redside dace	<i>Clinostomus elongatus</i> (Kirtland)
Common shiner	<i>Notropis cornutus</i> (Mitchill)
Blacknose shiner	<i>Notropis heterolepis</i> Eigenmann and Eigenmann
Fathead minnow	<i>Pimephales promelas</i> (Rafinesque)
Bluntnose minnow	<i>Hyborhynchus notatus</i> (Rafinesque)
Brown bullhead ★	<i>Ameiurus nebulosus</i> (LeSueur)
Johnny darter	<i>Boleosoma nigrum</i> (Rafinesque)
Rainbow darter	<i>Foecilichthys caeruleus</i> (Storer)
Pumpkinseed	<i>Lepomis gibbosus</i> (Linnaeus)
Muddler	<i>Cottus bairdii</i> Girard
Brook stickleback	<i>Eucalia inconstans</i> (Kirtland)

7. Recommendations for Improvements

While there is no hope that the fishing conditions in the Don will ever again be as good as they were a hundred years ago, some modifications would considerably improve the stream. The cold spring-fed tributaries could be protected and the influence of the streams extended downstream by further planting of trees for shade around the sources and along the banks. Alders are the most useful trees for this purpose. There should result a slight but definite increase in the range of the speckled trout in the watershed.

Individual owners of some tributaries could improve them for trout by constructing ponds near the sources, confined at present to the sections of the tributaries coloured blue on the map. Many small pools could be developed in the sections of the tributaries below the trout range by means of low dams, partial dams or deflectors. In this way property owners can greatly improve the appearance of the streams passing through their land. Wherever bank erosion occurs it should be arrested by concrete or masonry retaining walls or by cribbing.

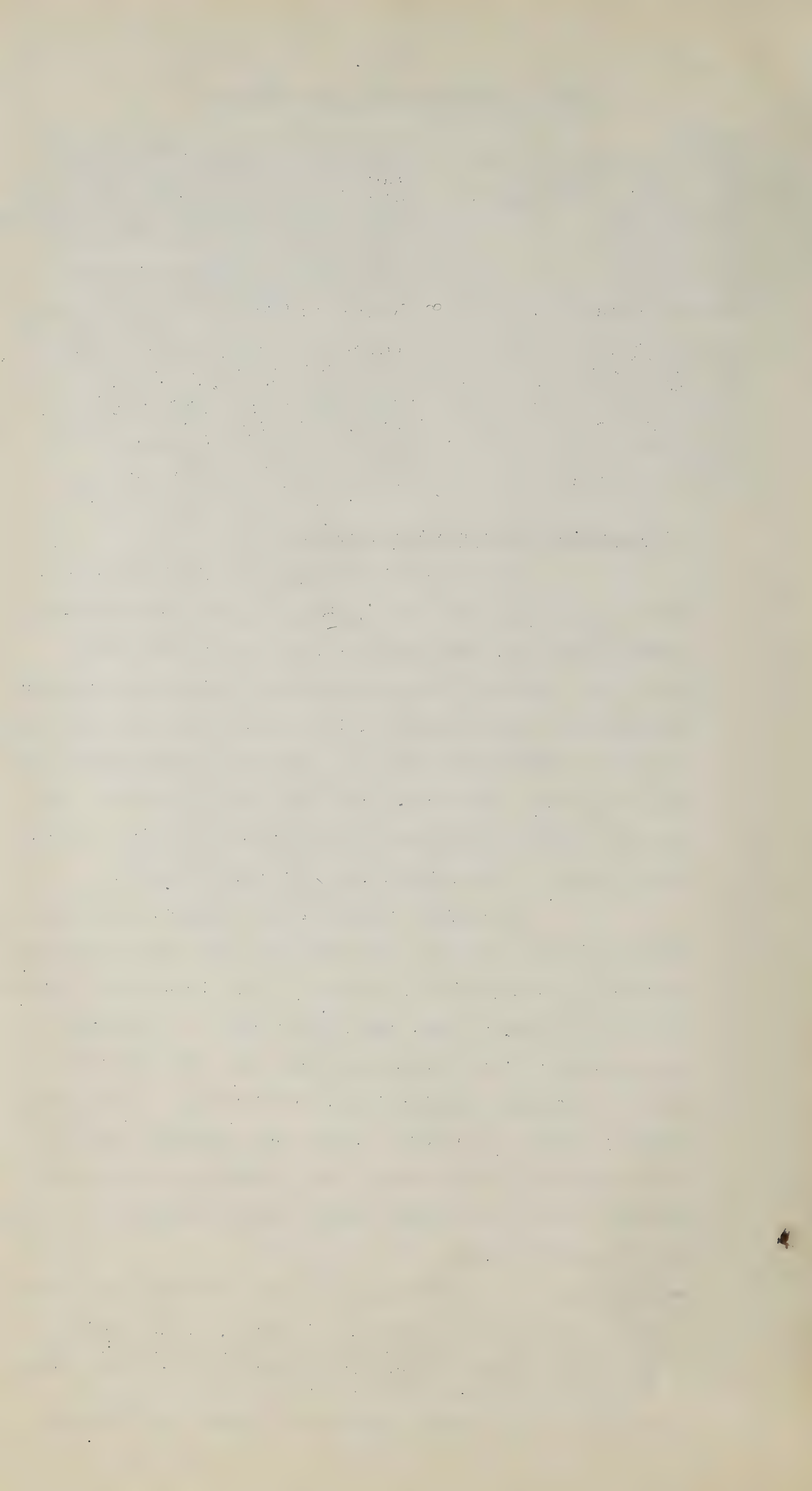
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1.

The arrangement follows that of Dymond, J. R., 1947: "A List of the Freshwater Fishes of Canada East of the Rocky Mountains" (Misc. Publication No. 1 - Royal Ontario Museum of Zoology, Toronto).

★ Species of particular interest to anglers are starred.





Bank erosion on the Don River two miles east of Thornhill (German Mills).



The river may be easily improved by the construction of simple and inexpensive dams. This one is south-west of Richmond Hill in Vaughan Township.



A trout pond on the Don, at the Research Station of the Department of Lands and Forests near Maple.





## 8. Farm Fish Ponds

While there are several farm ponds on the watershed, few of them produce a useful yield. There is ample room for improvement of this type of fishing in the watershed and farm fish ponds can be a very useful resource.

The chief research on management of farm fish ponds has been carried on in southern and warmer climates, and therefore the findings cannot be applied without qualification to an area having the climate of Southern Ontario, but some definite recommendations may be made. Farm ponds are of two kinds.<sup>1</sup> The first is the cool pond with abundant oxygen supply from continuous inflowing water and maximum temperature below 75° Fahrenheit. This type of pond is best adapted to the production of speckled trout or brown trout. These species of trout do not normally reproduce in ponds and must be maintained by periodic restocking. Ponds cold enough for trout should be stocked only with trout and the two species of trout should not be mixed. Speckled trout fingerlings should be stocked at the rate of about 3,000 per acre.

The second and commoner type of farm pond is the warm water pond. Most farms have at least one low spot suitable for a fish pond. It is frequently good practice to have separate ponds devoted to wildlife and fish and to control the aquatic plants in the fish pond. In general the treatment of farm fish ponds involves the following improvements:

(a) A dam should be built with a 3 to 1 slope upstream and a 2 to 1 slope downstream ensuring a minimum depth of 10 feet over at least 25 per cent of the pond to avoid excessive winter kill, probably the critical factor in fish survival in most farm ponds in Ontario.

(b) An emergency spillway should be provided.

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1. An excellent handbook on the details of construction and management of farm fish ponds is "Fish Ponds for the Farm" by F. C. Edminster, published by Charles Scribners Sons, New York 1947. Some of the above information is abstracted from this bulletin.



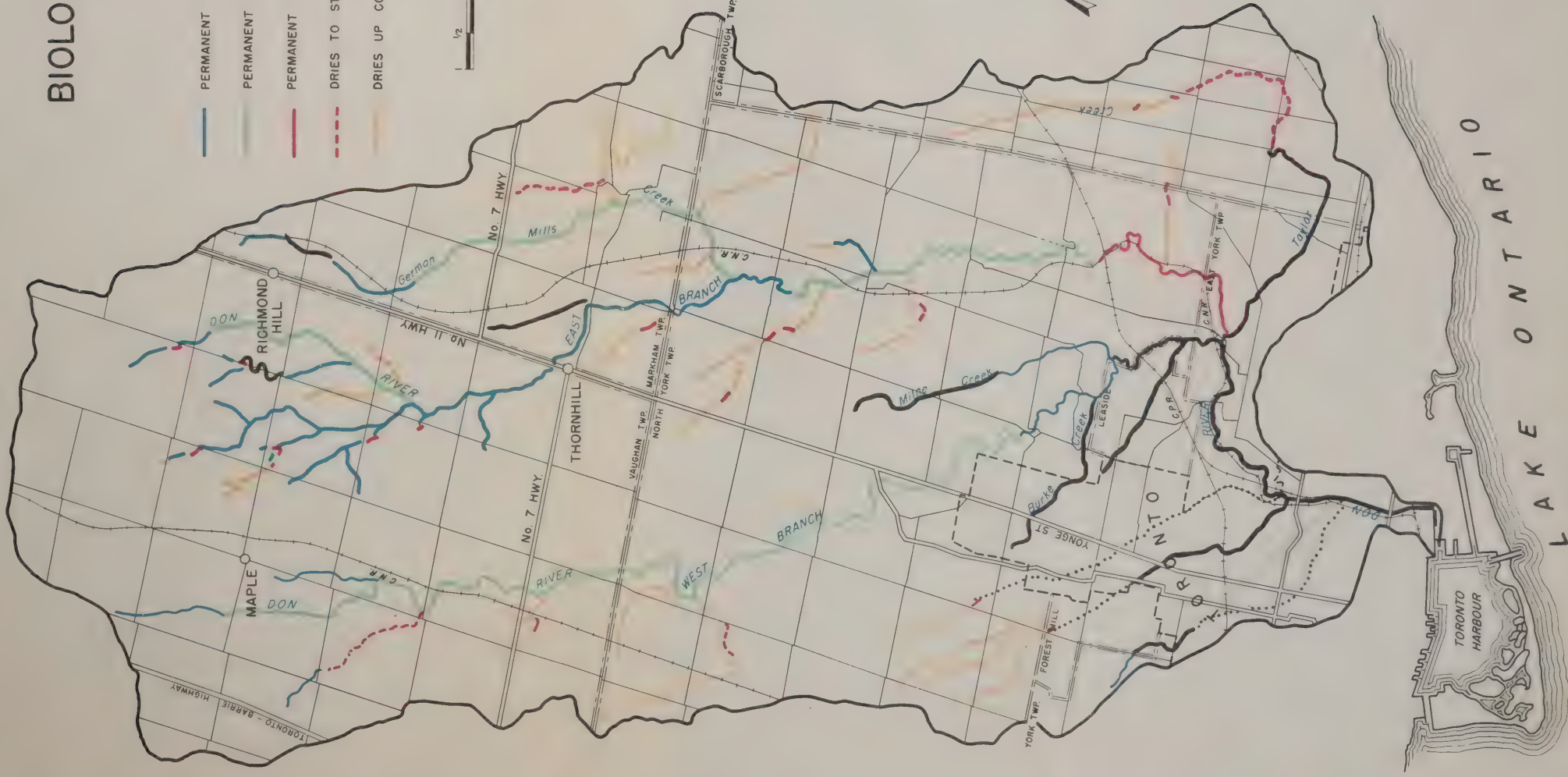
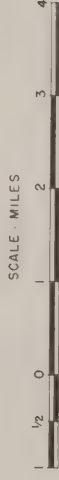


# BIOLOGICAL CONDITIONS OF STREAMS

## LEGEND

### (SUMMER CONDITIONS)

- |                         |  |
|-------------------------|--|
| PERMANENT FLOW COLD     | LOW DAILY MEAN TEMPERATURE             |
| PERMANENT FLOW COOL     | MINOR DAILY TEMPERATURE FLUCTUATION    |
| PERMANENT FLOW WARM     | MEDIUM DAILY MEAN TEMPERATURE          |
| DRIES TO STANDING POOLS | GREAT DAILY TEMPERATURE FLUCTUATION    |
| DRIES UP COMPLETELY     | HIGH DAILY MEAN TEMPERATURE            |
|                         | MODERATE DAILY TEMPERATURE FLUCTUATION |
|                         | HEAVILY POLLUTED                       |
|                         | UNDERGROUND SEWERS                     |





(c) If suckers, carp or large numbers of minnows are already present in the pond, it is usually best to destroy all fish in the pond.

(d) It is often necessary to control existing aquatic vegetation. There are both mechanical and chemical methods available<sup>1</sup>.

(e) There have been few tests made in Ontario of the efficiency of applications of fertilizer in increasing the crop of plankton, the smaller aquatic invertebrates. The research now being carried out in this field may lead to application of fertilizers such as 8-8-4 becoming more general

(f) Stocking of fish is necessary in most ponds. Warm water ponds may be stocked to the best advantage, after destroying the previous fish, with a combination of large-mouth bass (*Huro salmoides*) and bluegills (*Lepomis machrochirus*) at the rate of 100 bass per acre and 1,000 bluegills per acre. Fishing must be deferred until some of each species have spawned successfully.

(g) The foregoing recommendations concerning warm water farm ponds are based only on the experience of United States wildlife specialists. No results are available from planned experiments in farm pond management in Ontario. There is urgent need for research work in this field.

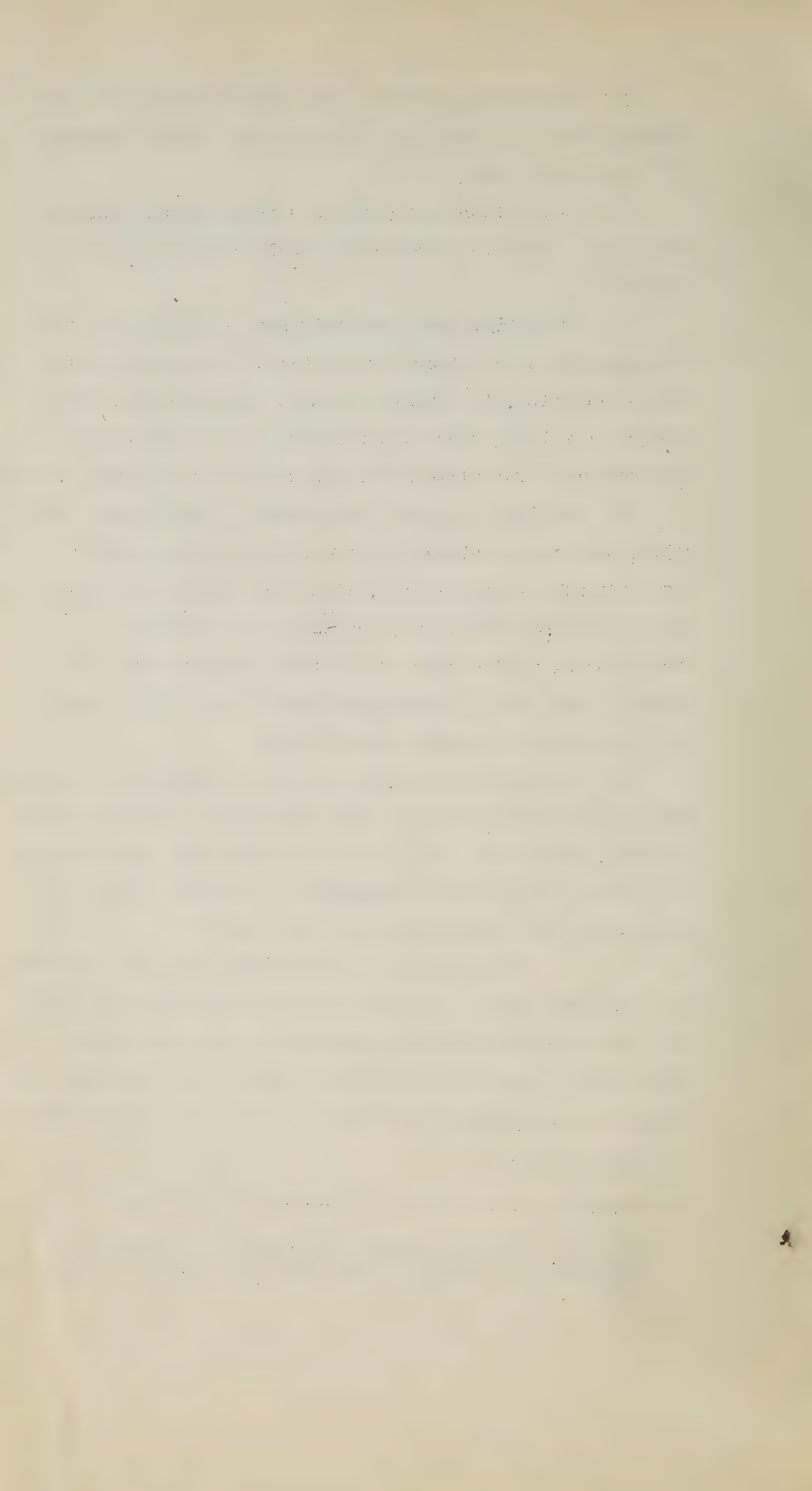
After carefully considering the possibilities, the landowner who is interested in fish ponds should consult the local Fish and Wildlife biologist of the Provincial Department of Lands and Forests at Maple. The overseers and biologists can suggest profitable alterations or additions to any plans made.

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1.

Speirs, J. Murray: Summary of Literature on Aquatic Weed Control. Canadian Fish Culturist, 3:(4): August, 1948.









## CHAPTER 1

### GENERAL CONSIDERATIONS

#### 1. Objectives

This report has two objectives. The first is to make an inventory of the present public recreation areas in the watershed and of possible improvements to them. The second is to draw attention to new areas which are needed for public use but which are threatened by private interests. Inevitably some form of control of such areas, either by the application of zoning by-laws or by acquisition, is involved.

In the preparation of the report, three points have been kept in view:

- (a) The retaining and protection of natural advantages.
- (b) The development of adequate facilities in maximum variety, available to people of all ages, tastes and income groups.
- (c) The adjustment of recreation plans to any other conservation measures proposed for the Don and neighbouring watersheds.

Small urban parks and playgrounds hardly fall within the scope of the present study. The larger urban parks are of course considered in their relation to the over-all park plans for the Greater Toronto area. In the past, the planning of recreation facilities in the Province of Ontario was directed towards two types of facilities, urban parks and playgrounds at one extreme and remote wilderness areas at the other. The time and cost involved prevent the average family or group from visiting wilderness areas more than once or twice a year. The lack of sufficient change of scene limits the relaxation value of small urban parks. It is now well recognized that an intermediate type of recreation area is very important. Such areas should be in or near large centres of population, but natural enough to provide the maximum of healthy out-of-doors activity and relaxation.







THE EAST BRANCH AT LAWRENCE AVENUE. HERE AT THE UPPER END OF THE PROPOSED GREEN BELT THE DON FLOWS CLEAR AND UNPOLLUTED IN A HANDSOME AND WELL SHADED VALLEY.





## 2. Types of Recreation Facilities

The kinds of recreation facilities commonly considered are as follows:

- (a) Beaches and pools for swimming
- (b) Beaches developed for children's use
- (c) Boating and fishing areas
- (d) Individual picnic sites and group picnic grounds in parks
- (e) Roadside picnic sites
- (f) Scenic drives
- (g) Individual and group camping areas
- (h) Trails for riding, hiking and nature study
- (i) Public hunting areas
- (j) Winter sports areas
- (k) Arboretums<sup>1</sup>
- (l) Youth Hostels<sup>2</sup>
- (m) Swimming holes
- (n) Historic sites
- (o) Public golf courses

For many uses land acquisition is the primary, and sometimes the only, requirement. In addition, such measures as pollution control, supervision of public swimming areas, planting of shade trees and many other services may be needed.

Many of these uses may be integrated in a broad plan of land zoning for health and recreation. In all growing communities a long range plan must be made with an eye to the future needs of the population. The amount of park lands and the location of them in relation to the centres of population are obviously of great importance. Modern master plans for both large and small cities now commonly include a zone of land called a Green Belt surrounding the inner metropolitan area and intended to provide space for many kinds of outdoor activities. Where strict zoning regulations are to be maintained some of this land may remain in private hands. Otherwise public

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1.

An arboretum is a collection of living trees, including as many native tree species of the region as possible. Interesting exotic species are sometimes added.

2.

The Canadian Youth Hostels Association is part of an international non-profit organization. It organizes well supervised sleeping quarters away from urban areas, available to hikers for a small fee. There is an Advisory Council composed of men and women prominent in education. This organization does not cater to those who travel by car.



17

1. The first part of the paper is devoted to a general discussion of the problem of the existence of solutions of the system of equations

$$\frac{dx}{dt} = P(x, y, z), \quad \frac{dy}{dt} = Q(x, y, z), \quad \frac{dz}{dt} = R(x, y, z),$$

where  $P, Q, R$  are functions of  $x, y, z$  which are continuous and have continuous first partial derivatives in a certain domain  $D$  of the space  $(x, y, z)$ .

2. It is known that if the functions  $P, Q, R$  satisfy the conditions of the theorem of existence and uniqueness of solutions, then there exists a unique solution of the system of equations for any initial conditions.

3. In the present paper we shall consider the case when the functions  $P, Q, R$  do not satisfy the conditions of the theorem of existence and uniqueness of solutions, and we shall study the properties of the solutions of the system of equations in this case.

4. We shall assume that the functions  $P, Q, R$  are continuous and have continuous first partial derivatives in a certain domain  $D$  of the space  $(x, y, z)$ , and that the functions  $P, Q, R$  are not identically zero in  $D$ .

5. We shall assume that the functions  $P, Q, R$  are not identically zero in  $D$ , and that the functions  $P, Q, R$  are not identically zero in  $D$ .

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## THE GREEN BELT

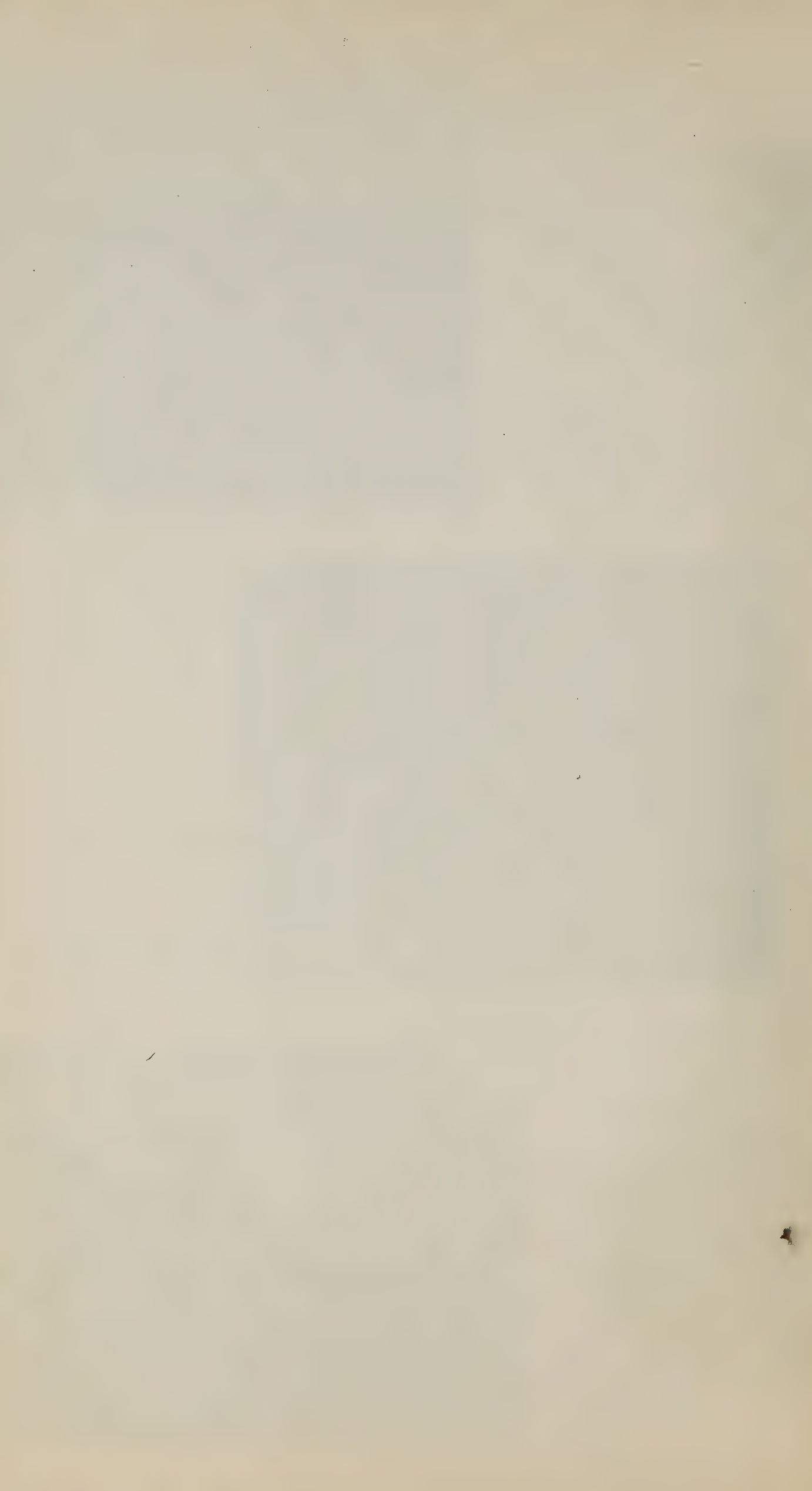
A natural park at the Bathurst Street crossing of the west branch of the Don. This area was for many years a favourite picnic spot but is now closed to the public.



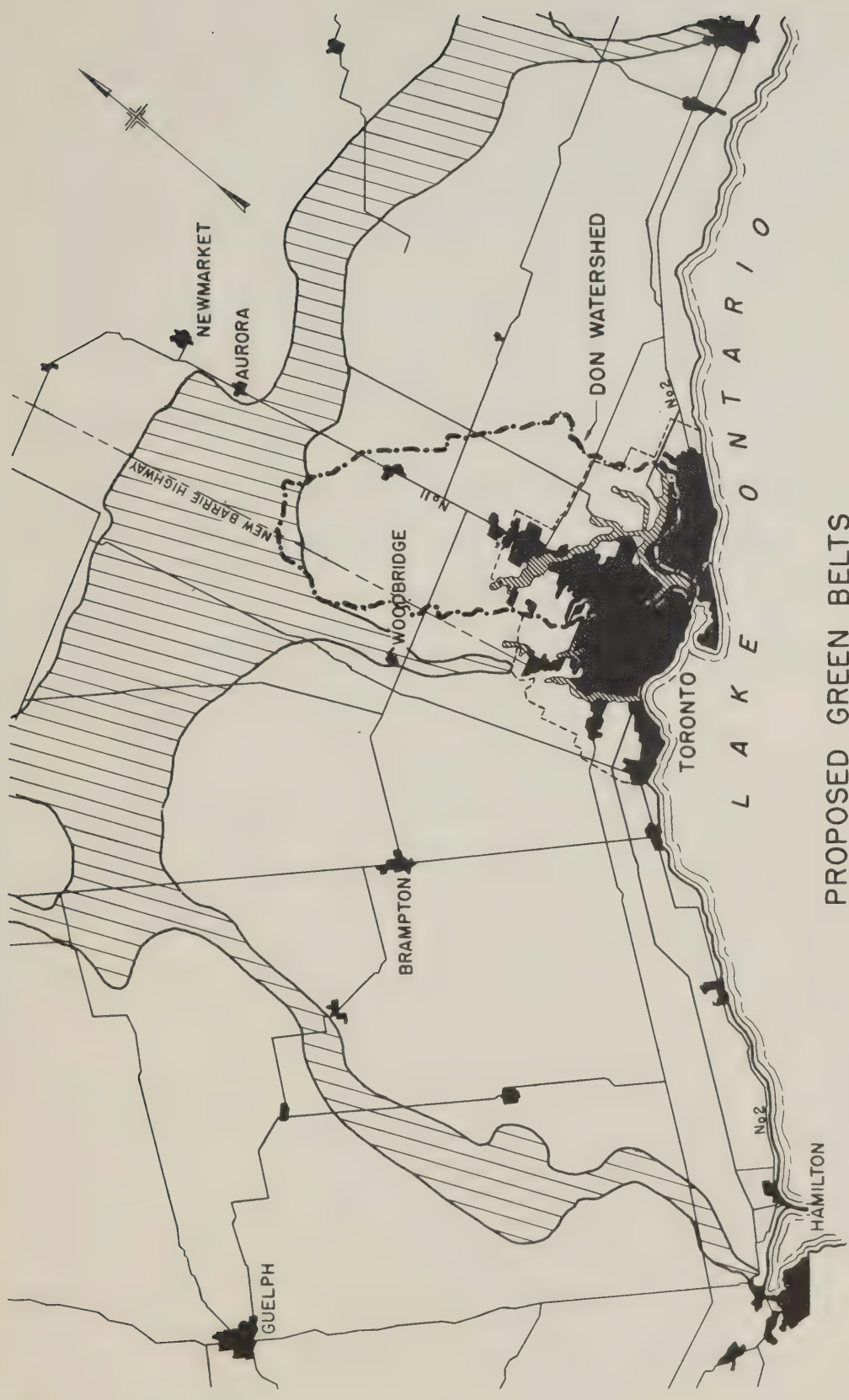
Such signs as these are now commonplace throughout the Don Valley.



Attractive stretches of the valley, such as this, should be preserved for public use.





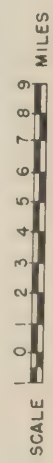


# PROPOSED GREEN BELTS (1943 PLAN)

## LEGEND

INNER GREEN BELT REDRAWN TO CONFORM WITH  
TORONTO AND YORK PLANNING BOARD'S 1949 REPORT.

- INNER GREEN BELT
- OUTER GREEN BELT
- DON WATERSHED BOUNDARY
- PROPOSED BOUNDARY OF GREATER TORONTO







acquisition is the only guarantee of proper use.

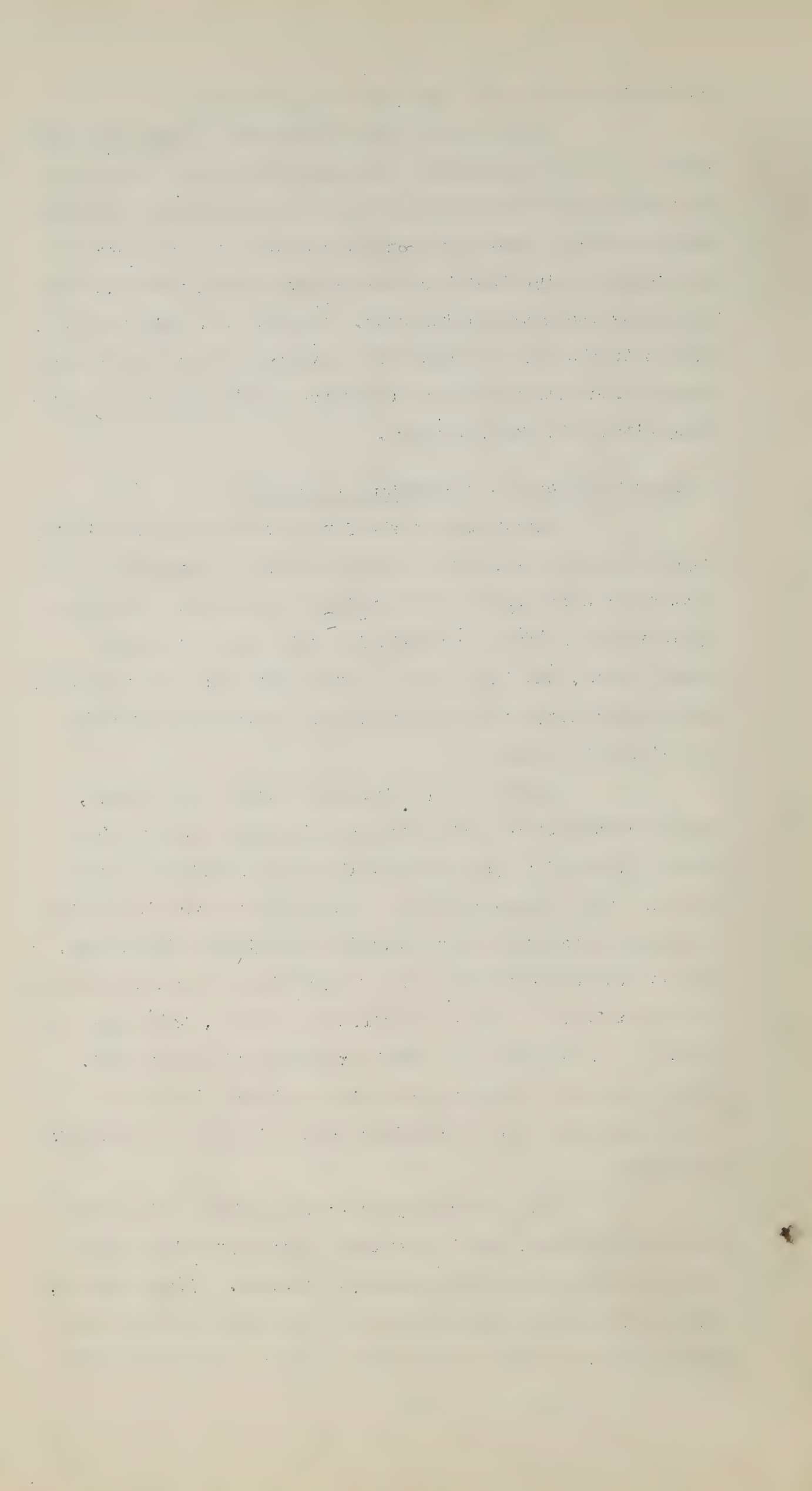
Such a Green Belt was included in the 1943-1944 master plans of the Toronto City Planning Board. Since then the Toronto and York Planning Board and the Advisory Planning Committee have likewise recognized the importance of such a development to the health and well-being of all those living in or near the metropolitan area. Chapter 4 of this report is devoted to the ways and means of providing a Green Belt in the Toronto area with particular reference to the part of Toronto lying within the Don Watershed.

### 3. Possibilities for Recreation on the Don

Recreation on the Don must be considered in its proper setting as part of a larger picture of recreation for a great urban area and its surrounding countryside. Four main physiographic features characterize this area: the Lake Ontario shore, the flat plains in the south, the hilly moraine country near Maple and farther north, and the river valleys dissecting the plain.

Apart from the Toronto beaches and islands, a large increase in the lakeshore contribution to recreation close to Toronto is prevented by the lack of suitable areas which are not already built up. The plain country is lacking in interest except for its provision of aviation facilities. Parts of the hilly moraine will undoubtedly be further developed for recreation. In the Don Watershed, however, this type of country is restricted to a small extension of the moraine, without ponds or streams of any size. Skiing, hiking and nature study may here be combined with a forest for headwaters protection.

The one geographic feature which distinguishes the City of Toronto and its environs from most other large cities in the world is the system of ravines. These ravines, which tended at one time to restrict the development of the Toronto area, are now a very great asset to the city and the





Maple Hills Park, in the Don Valley Forest west of Richmond Hill, is land that is unsuited to agriculture. It is ideal terrain for camping, hiking, nature study and winter sports. These hills are favourites for skiing.



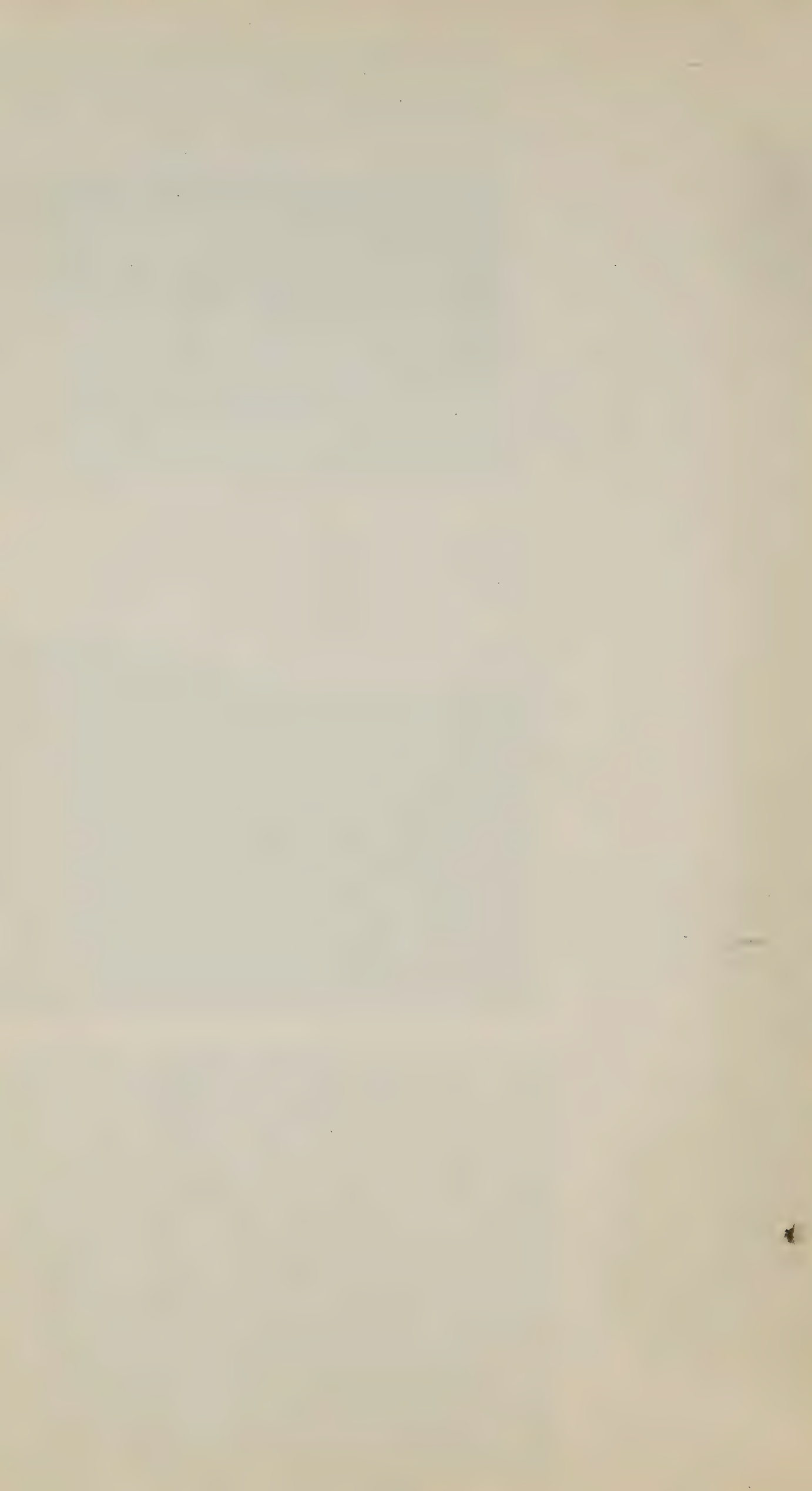
These heavily wooded lands in the heart of Toronto are a great boon to the nearby residents. It is not too late for action to protect for every section of the city a similar piece of parkland. This is the view east from the Glen Road Bridge.



Great willow trees line the quiet lanes and bridle paths of the Rosedale ravine.







surrounding country. While both the Humber and Rouge Rivers offer fine sites for rural parks outside the dense concentrations of urban population, the Don River passes through the heart of the urban area.

From the point of view of recreation, the Don valley has four outstanding features, as follows:

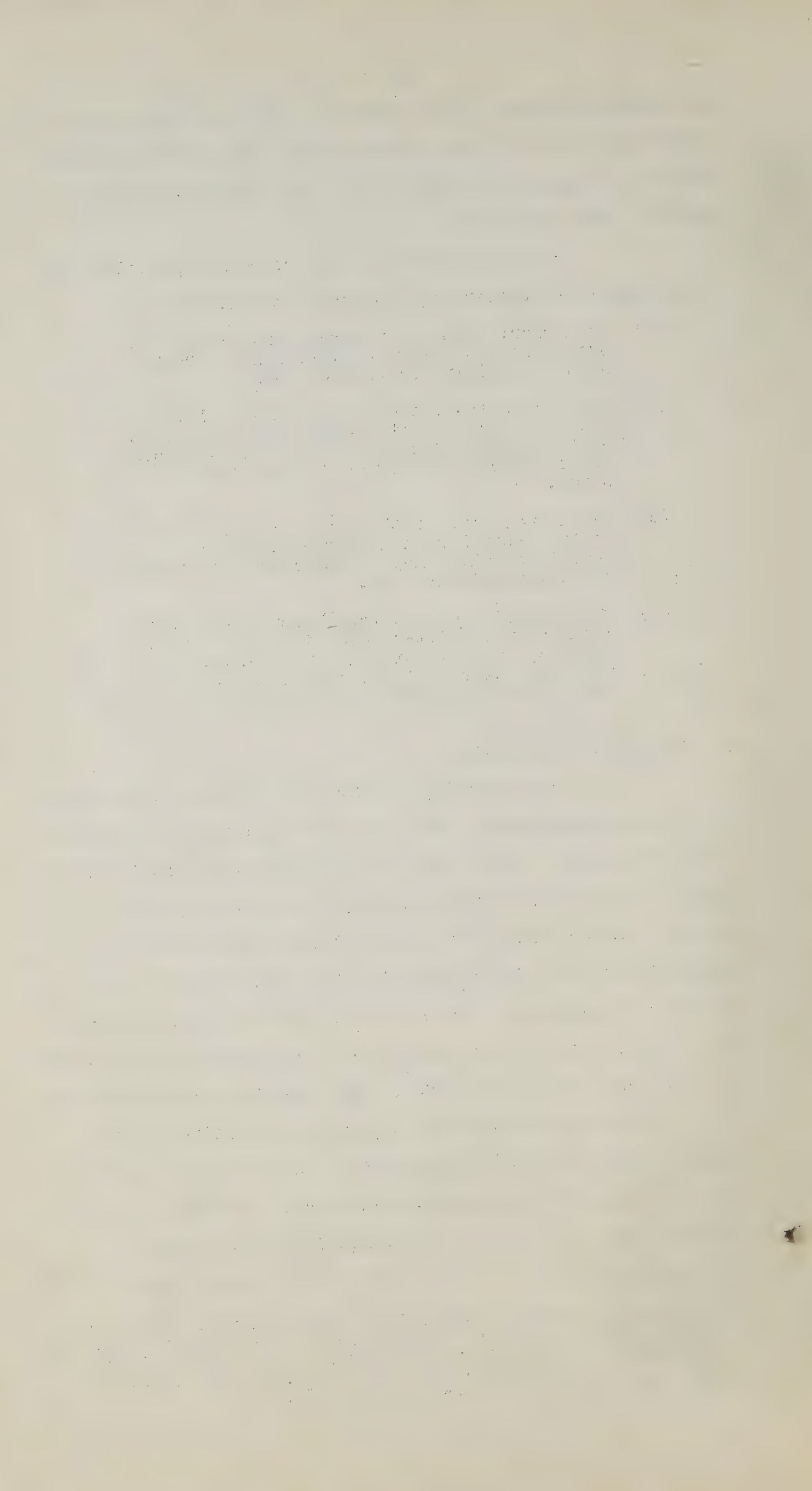
- (a) At a short distance upstream from the urban area, the Don breaks up into small streams suitable mainly for picnic sites.
- (b) Lower down the valley is remarkably little spoiled, and the alternating broad and lush bottom lands and wooded slopes and terraces offer a great variety of fine recreation sites.
- (c) The lower parts of the valley are so close to the urban land that any attractive facilities which may be developed are certain to be intensively used.
- (d) The proximity of the lower sections of the river to the built-up area increases difficulties from pollution and from actual or potential uses of land, preventing its acquisition for public recreation.

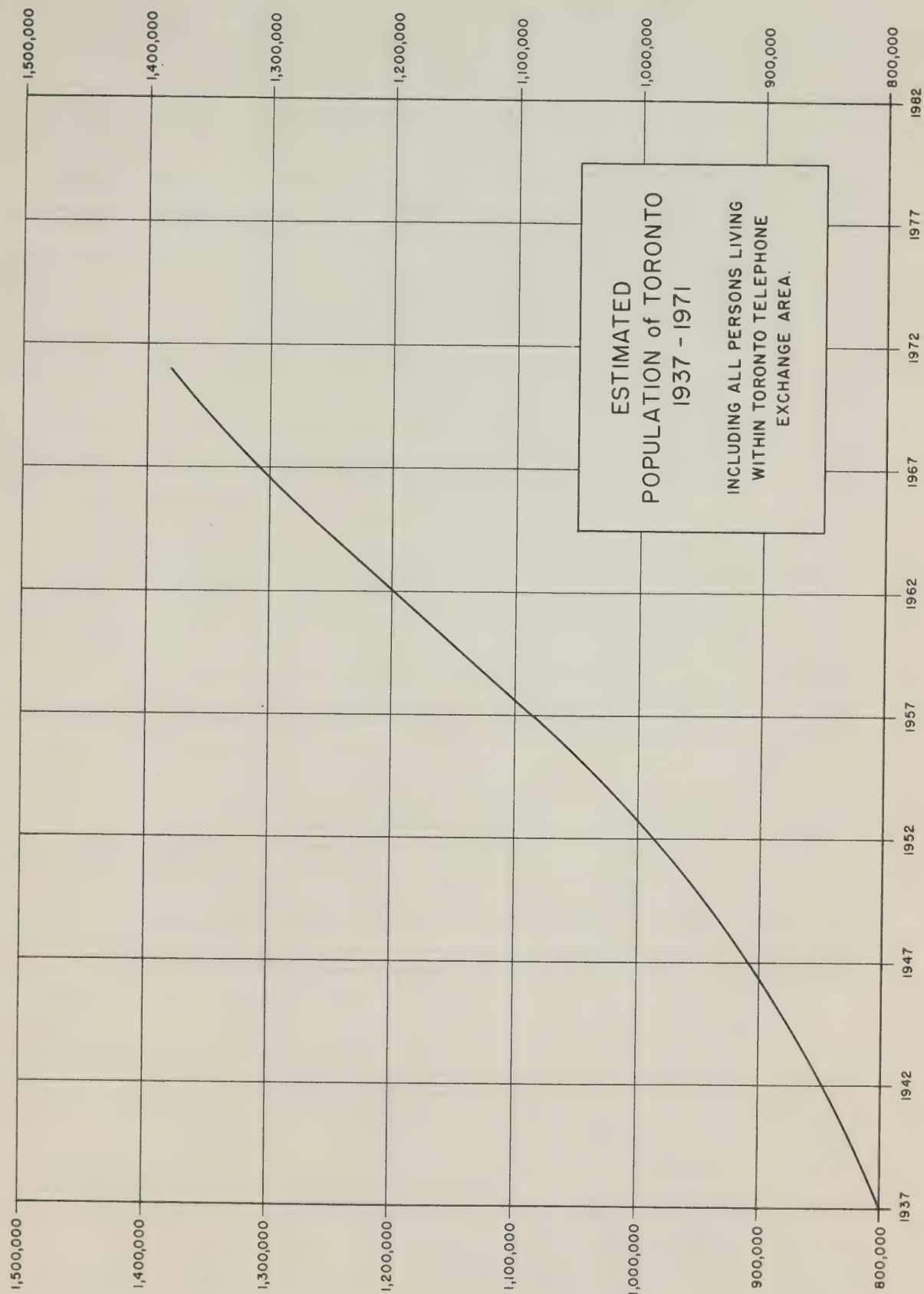
#### 4. The Population Factor

The lower half of the Don Watershed lies within the Toronto urban area. This area already contains more than 1,000,000 people. Since the Don Valley has very great advantages of scenery and accessibility, it must be expected to provide a major share of the recreation facilities for the population of the City of Toronto, the small towns and the families of farmers in the watershed. The accompanying graph gives the best available estimate of the expected growth of the Toronto urban area up to 1970<sup>1</sup>. This estimate is a conservative one. Any facilities planned to provide recreation for the present population may be expected to require extension rather than reduction for the expected increased population and are certainly not likely to be too large for future needs.

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1. Based on information supplied by the research division of a public utility company. This estimate corresponds closely to that shown in the 1943 report of the City Planning Board of Toronto of a population between 1,250,000 and 1,500,000 in 1974 for the Toronto Metropolitan Area.





ESTIMATED  
POPULATION of TORONTO  
1937 - 1971  
INCLUDING ALL PERSONS LIVING  
WITHIN TORONTO TELEPHONE  
EXCHANGE AREA.





No one in the urban area of Toronto lives more than 12 miles from the Don River and many live within sight of its banks. Even the extreme limits of the watershed are only 10 miles from the urban area. Such a concentration of population ensures the full use of any recreation facilities which may be developed. If any further evidence were needed it would be supplied by the overcrowded condition of parks on the Rouge and on the Humber where, for example, 1,500 people crowd into one seven-acre park. No comparable parks exist on the Don River. What limited facilities do exist are used to the full.

The same large and increasing population which enhances the value of the valley for public recreation creates difficulties in the way of its use for this purpose. Although the valley flats are not well suited to residential building some houses have been built there and more are likely to be built, particularly where terraces provide sites a little above the flood plain. More common is the crowding of houses along the valley rim, depriving the public of look-out points and blocking natural access routes even where the valley itself is open.

The improvement of such conveniently located land for private estates increases the difficulty and cost of acquisition, while emphasizing the urgency for prompt action. One of the best park sites on the Don River, last year unused farmland, is this year scheduled for estate development. It is therefore recommended that zoning regulations should control further residential or industrial building in the valley.

##### 5. Destruction of Ravines

Several of the most attractive ravines have been filled in or greatly reduced by the dumping of refuse and earth fill. This destruction still goes on. Small wooded ravine heads in particular are often regarded as potential building sites or simply as nuisances. There was a conspicuous example of the destruction of an attractive ravine in Leaside during 1949.

The first part of the paper is devoted to a general discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The second part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The third part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The fourth part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The fifth part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The sixth part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The seventh part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The eighth part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The ninth part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The tenth part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe.



## DESTRUCTION OF RAVINES



These photographs show what is happening in 1950 to an attractive ravine in the Town of Leaside. All of the trees in the lower photograph and many of those in the upper one are already doomed.





The smaller ravines have an additional function in that they should provide access to the valley. It is of great importance that where subdivision of land adjoining the Don Valley takes place, the municipality concerned should provide definite access routes to the valley at short intervals.

Ravine roads are often the only easy solution to problems of traffic congestion. The Belt Line Ravine, for example, until recently one of the most popular walks in the Don Valley, is now completely lost to recreation through the building of a limited access highway. Wherever possible ravines should be preserved and major traffic routes excluded from them. The unavoidable use of some few ravines should only emphasize the need for preserving the others.

#### 6. Railway Lines

Railway lines run through the main valley up to the Forks and along the east branch up to Lawrence Avenue. They make access more difficult, create crossing dangers and produce annoying clouds of smoke. The hope of removing these lines from the valley is remote. Proper fencing and some grade-separated crossings, at least for pedestrians, would be of help. A long overdue regulation banning coal-burning engines from the urban area would be welcomed by recreation seekers as well as nearby residents.

#### 7. Other Factors

The relatively unspoiled condition of much of the Don Valley does not apply to the river itself. The Don in its lower course is probably the most heavily polluted river in the Province considering its volume of flow. Pollution and the means to check it are both discussed in Chapter 3 of this report.

The dumping of refuse along roadside ditches is also a growing problem in the Toronto area. Many of the present unauthorized dumps have rapidly grown in the last two





## REFUSE

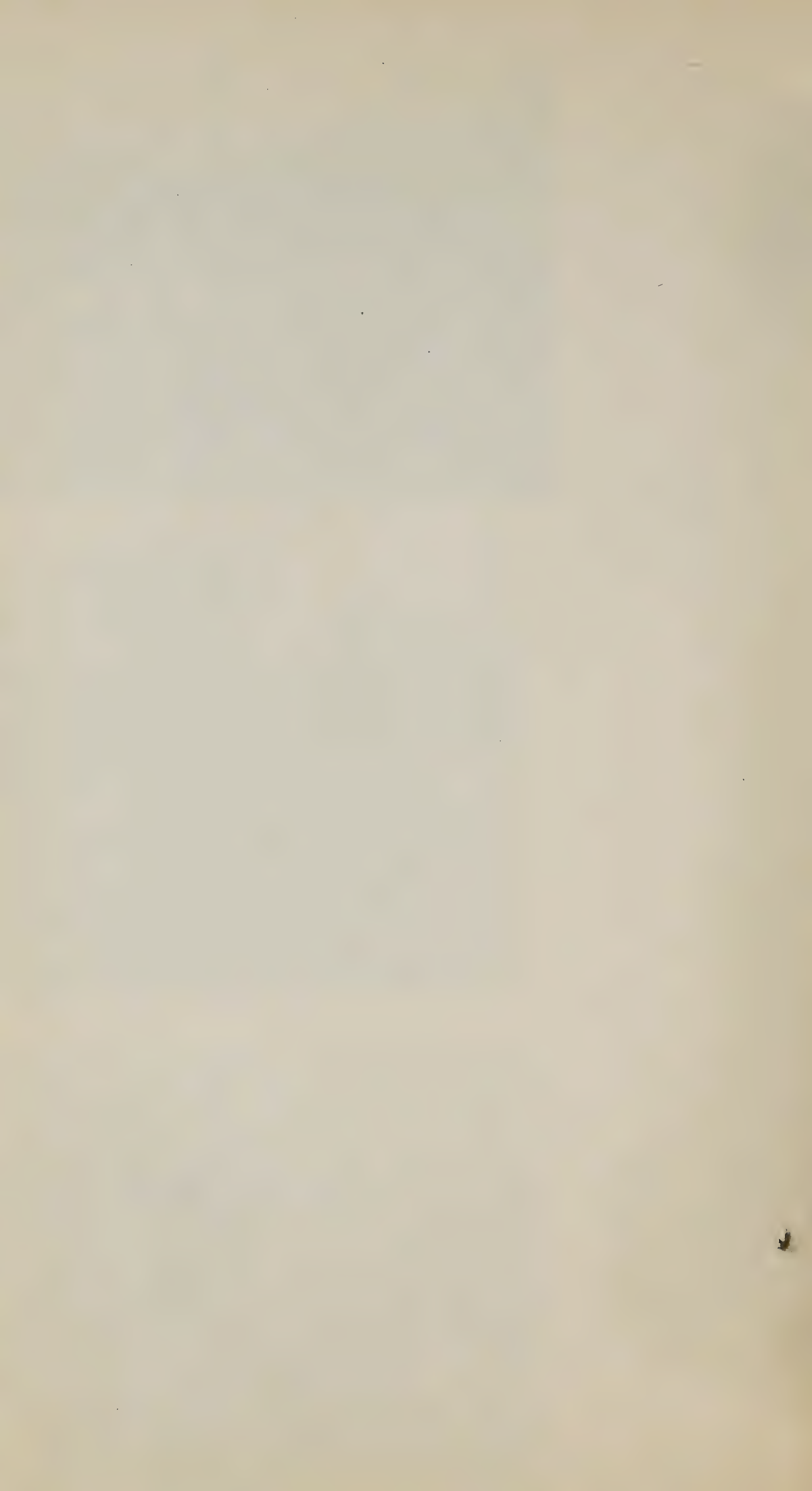


At many of the road crossings of the river unauthorized dumping or refuse takes place. These two photographs are of the Lawrence Avenue crossing of the Don, which until a few years ago was a popular and attractive picnic site.



A sideroad in East York marred by thoughtless dumping of refuse.





years. The ordinary notice "No Dumping" is not effective. The Township of North York has taken a commendable step in offering a reward of \$25 for information leading to a conviction of persons leaving refuse on a road allowance. This lead could well be followed by other municipalities.

The most urgent need, both on this continent and in Europe, has always been the necessity of acquiring enough attractive lands for the use of the public around large cities before private individuals and real estate companies have acquired and either closed or built up all the attractive areas, raising the land cost to a prohibitive figure. It is not too late for action on the Don Watershed.



## CHAPTER 2

### EXISTING FACILITIES

#### 1. Municipal Parks

##### (a) Riverdale Park, Toronto Zoo and Millen Stadium

This park contains 109 acres located on both sides of the Don River from Gerrard Street to Danforth Avenue. Ten acres are occupied by the Zoo, which is visited by many thousands of persons each year. Plans are being made for its removal to a site more suitable for a modern zoo.

Millen Stadium is a floodlighted baseball and rugby field to which an entrance fee is charged. The City receives a percentage of the gross receipts.

The park provides a great natural amphitheatre where a number of pageants have been held. It contains the following recreation facilities: 10 baseball diamonds, 3 cricket creases, 8 football fields, 13 tennis courts, 2 horseshoe courts, 2 skating rinks, 4 hockey rinks, 3 toboggan slides, 1 bowling green, 1 wading pool and 1 children's supervised playground.

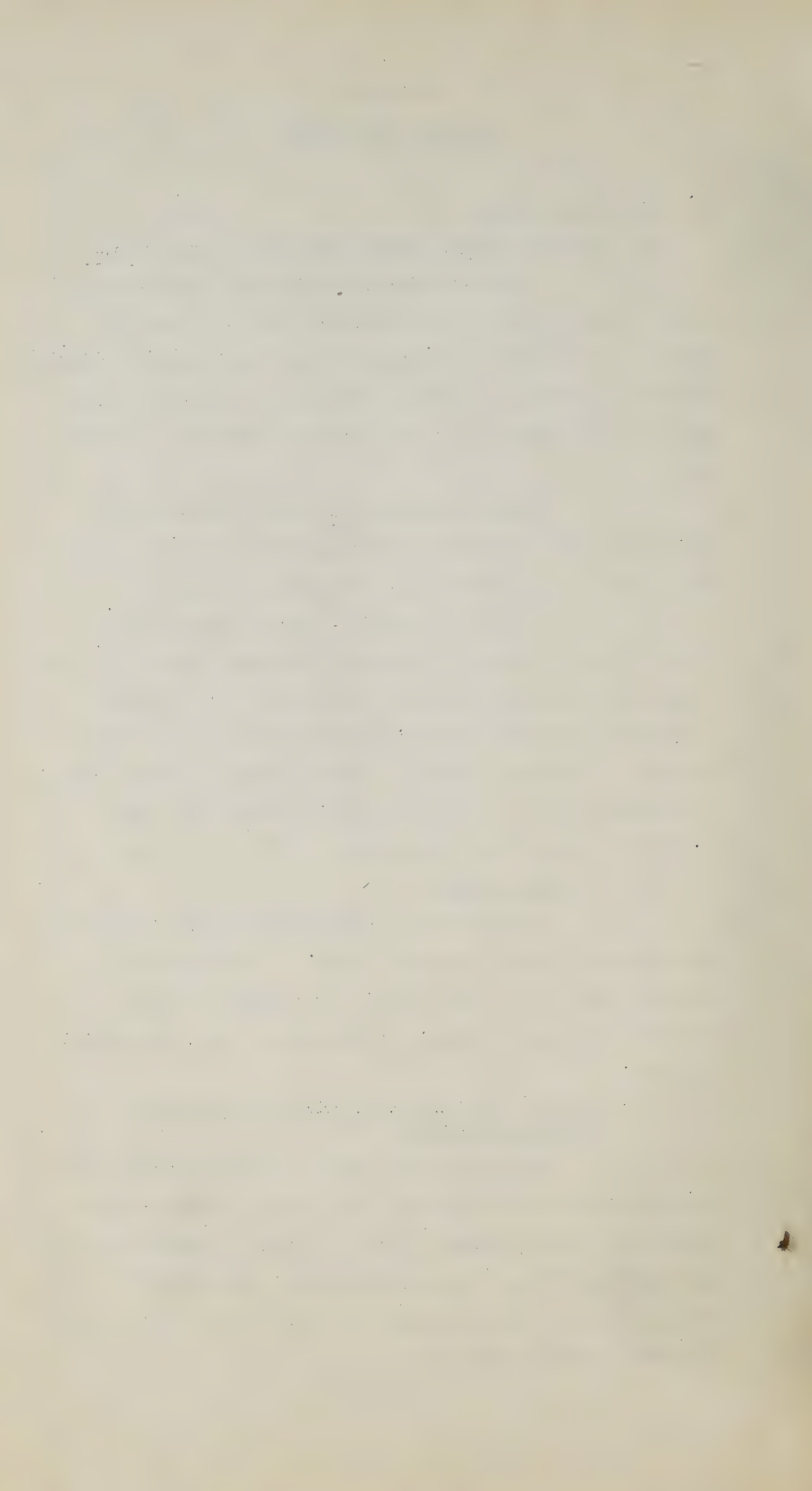
##### (b) Todmorden Park

Part of the 25 acres of this park is used by the Todmorden Sewage Disposal Plant. The remainder is largely undeveloped open field. It contains toilets, a Kiwanis Day Camp building, a refreshment stand, swings and a slide.

##### (c) Taylor's Bush and East Branch to Woodbine Avenue (East York)

The attractive flats and woods of this 116-acre park are undeveloped but were formerly very popular picnic and hiking areas. Taylor's Bush is largely spoiled by the stench from sewage in the creek, while the East Branch becomes more difficult of access due to continuous building on the valley rim.





(d) Woodbine Park

This 17-acre park contains the Danforth Park Sewage Disposal Plant which contaminates the creek. A children's wading pool and swings are provided.

(e) Cedarvale Park (East York)

Situated on the high land adjoining Woodbine Park, this 25-acre property is being developed for sports. At present it contains one baseball diamond and the excellent Kiwanis East York Memorial swimming pool which served 100,000 people in its first year of operation.

(f) Dentonia Park

A large part of this 73-acre park is undeveloped. Taylor Creek is here polluted by the Scarborough Sewage Disposal Plant. The south part of the park provides 1 cricket field, 1 soccer field, 2 picnic areas, 5 tennis courts, 1 bowling green and 2 softball diamonds. The small section east of Pharmacy Avenue contains a children's wading pool, swings and a covered stand.

(g) Rosedale Ravines

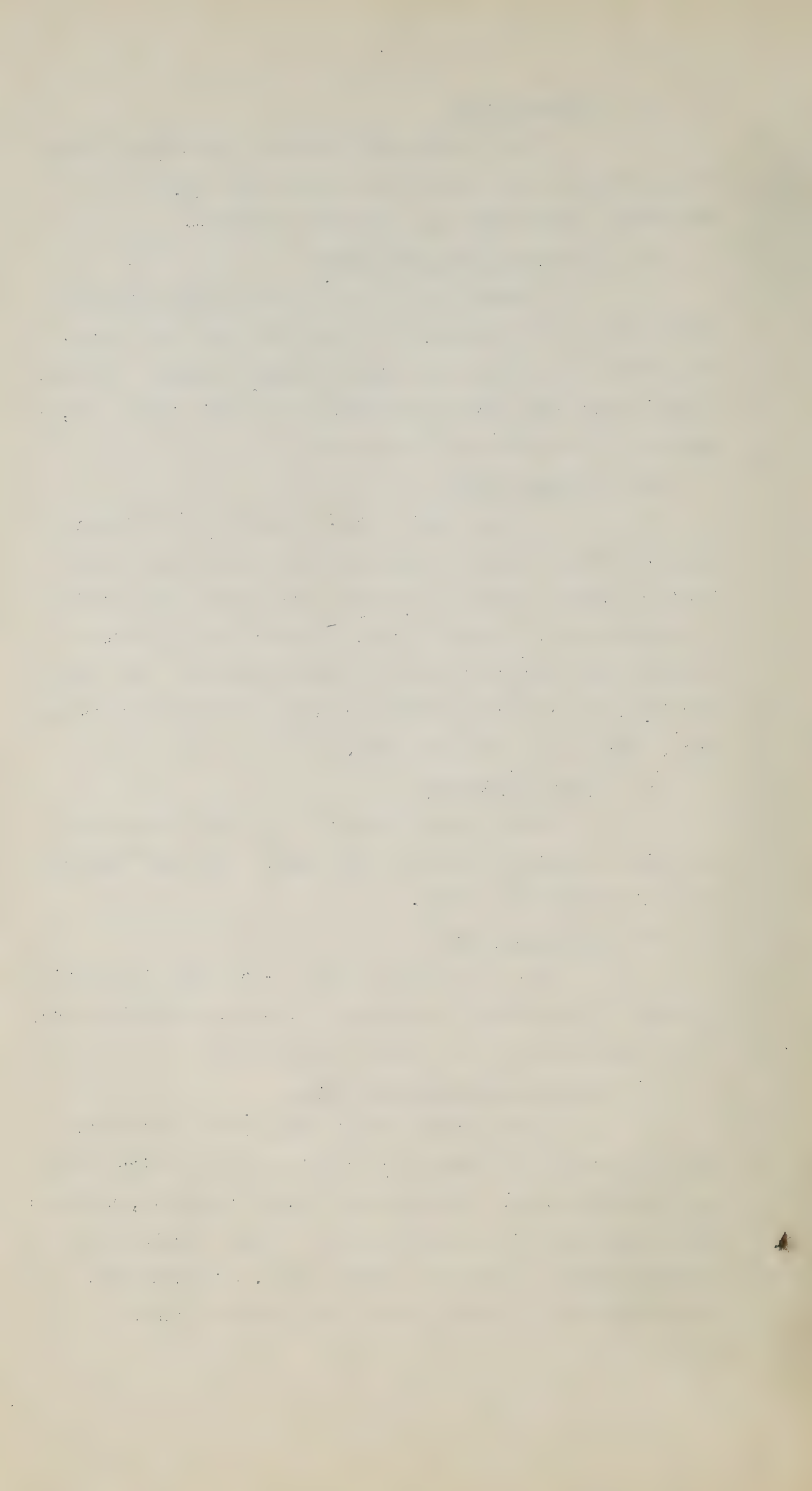
These narrow valleys with their steep wooded hillsides contain 37 acres of park land. They are favourite spots for horseback riding.

(h) Reservoir Park

The tableland of this 44-acre park is occupied largely by the Rosehill Reservoir. The ravine portion provides accommodation for 2 large picnic groups.

(i) Sherwood and Lawrence Parks

These parks between Yonge Street and Bayview Avenue aggregate 53 acres in a tributary ravine which forms an attractive walk. The section between the parks, although privately owned, is at present open. Small sections have been developed to provide 3 picnic areas, 2 wading pools, 1 bowling green, 2 tennis courts and 1 skating rink.



(j) Eglinton Park

The 22 acres of this park provide 4 baseball diamonds, 1 football field, 1 children's playground, 2 skating rinks and 2 hockey rinks. An artificial ice rink is planned.

(k) Cedarvale Park (York Township)

Development of this park is just beginning. Much of its 36 acres are raw earth from recent grading. It contains 1 baseball diamond.

(l) Carson Park

The City of Toronto has recently acquired an area of 151 acres of the ravine of the West Branch of the Don on both sides of the high-level Avenue Road bridge near Hogg's Hollow. This is an area of attractive and spacious park land and the City has shown very commendable initiative in acquiring it.

(m) Various Small Parks

Twelve small parks with an aggregate of 76 acres have been developed as rest or sports areas.

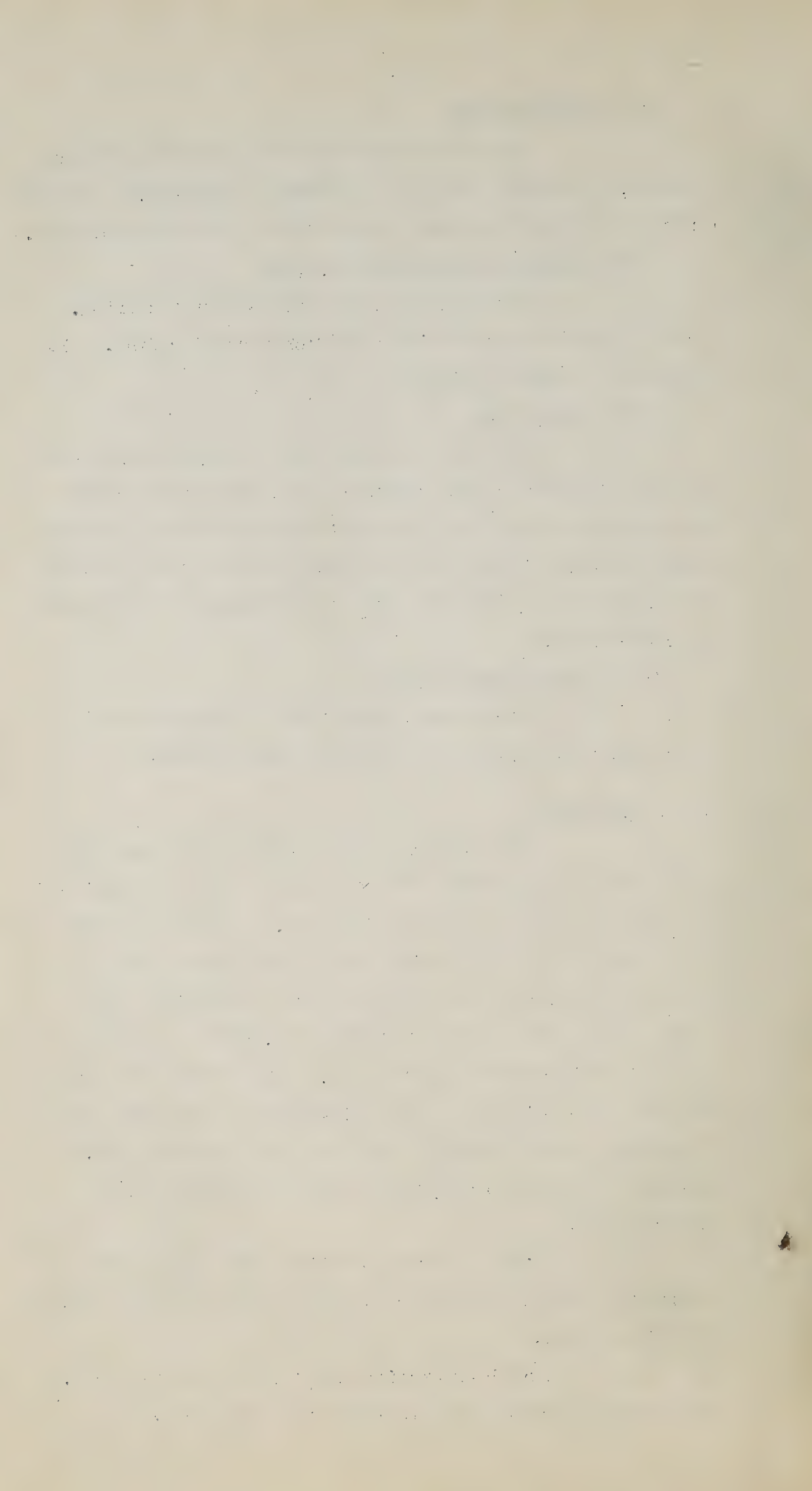
2. Golf Courses

Over 1,100 acres are included in the eight golf clubs using the Don Valley. In addition two private estates have small courses of their own. Only two clubs allow public play for a daily fee. The others restrict play to club members and their guests. The eight clubs serve about 1,100 players per day or 150,000 in a season. This is good recreation use of land, but not intensive use for the area involved. The possibility of increased use is suggested by the success of the five golf driving ranges, most of them newly opened, which serve as many as 1,500 players a day.

Many of these properties are used to some extent for skiing, but have received little or no development for this purpose.

Some bank erosion and flooding are reported, but on most courses these problems are not serious.





3. Riding

The delightful trails of the main valley and wooded side ravines have proved very attractive as bridle paths. Five public stables still operate. One stable was closed recently when the property became a private estate. In the case of two others, which are now boarding stables only, decreasing trails were one factor in the discontinuance of hour rentals. Many private horse owners also use the Don trails. These trails serve over 1,000 riders on good days, and over 75,000 per season. In addition some stables organize corn and wiener roasts, hay rides and sleigh rides, and one riding academy has organized a youth club with a varied recreation program.

4. Activities Sponsored by Churches, Youth and Service Organizations

The organizations in this category include churches of several denominations, Kiwanis Clubs, Y.M.C.A.'s, Boy Scouts, Girl Guides and others. Their use of the valley varies from intensive recreation programs to occasional visits and involves all age classes. While no accurate estimate is possible, such reports as were obtained indicate that at least 40,000 visits per year were made to the Don Valley by their members. As would be expected, the most intensive use was in the more developed and more accessible part of the valley, but all sections opened to the public were put to use. Two day camps required permanent or semi-permanent establishments.

The variety of activities by these many groups is indicated by the following list: hikes, campfires, overnight camps, campcraft and woodcraft, wiener roasts, treasure hunts, games, picnics, nature study, baseball and hockey leagues, skiing, sleighing and swimming. To all these the natural setting of the Don Valley contributed greatly, and is capable of greatly increased contribution.

A questionnaire was sent out to all organizations known to use the Don Valley for recreation activities.



Their suggestions for attaining the maximum usefulness of the valley are worthy of note:

- (a) Pollution control and improved swimming facilities
- (b) Provision of picnic tables and fireplaces
- (c) Provision of drinking water and sanitary conveniences
- (d) Retention of the naturalness of the valley
- (e) Better patrol to make the valley safe from undesirable persons and to curb vandalism
- (f) Provision of trails, bridle paths and roads, both for public use and to facilitate patrol
- (g) Provision of additional playing fields, rinks, and games equipment for children
- (h) Publication of a map showing areas open to the public and routes of access to each area

Another organization which may become an important factor in the use of the valley is the Canadian Youth Hostels Association, whose aim is to encourage such healthful activities as cycling and hiking by the provision of overnight accommodation. There are about 700 members in the Great Lakes Section, and visitors from other sections, including the United States, are becoming common. Having recently engaged a full-time secretary, the Association feels that it is entering a period of great expansion. The only hostel in the Don Valley area, although not ideal in location, received about 200 visitors this season. The assurance of good hiking trails would lead to the establishment of new hostels and a manifold increase in activity in this area.

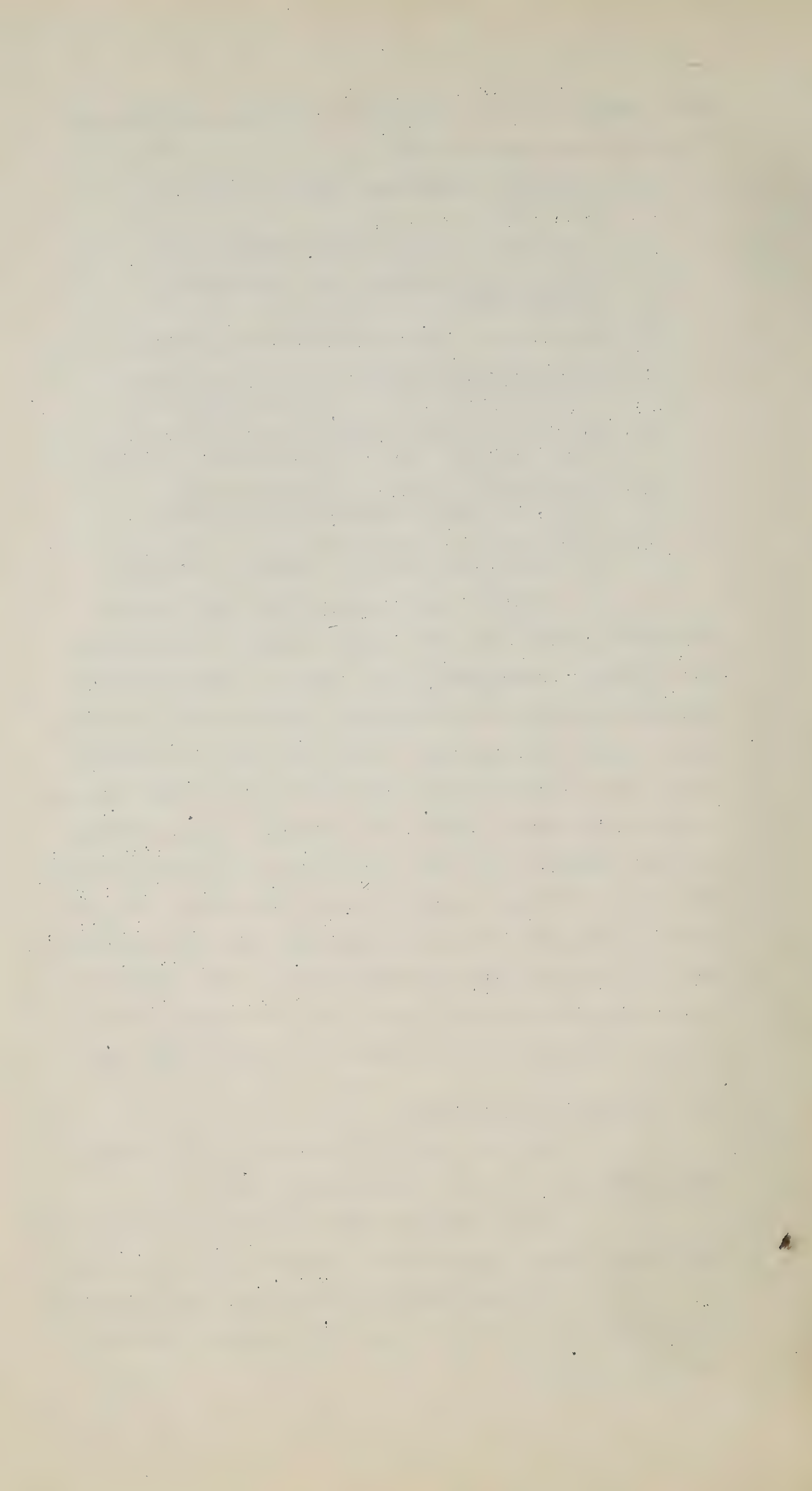
##### 5. Various Other Activities

One race track in the area in its 14 days of racing each year receives 200,000 spectators.

Three companies operating flight services from the Barker Airport serve several thousand people each year.

The David Dunlap Observatory, containing the fourth largest telescope in the world, receives about 4,000 visitors a year.





The Don Valley School of Art, another organization which combines recreational with educational values, has served 200 members in its first year of operation. A club-house has just been built at the Forks of the Don.

The Toronto District Revolver Association, with about 200 members, uses a small property on the river. They suffer from vandalism and lack of a club-house or secure tenure of the property.

6. Unorganized Activities

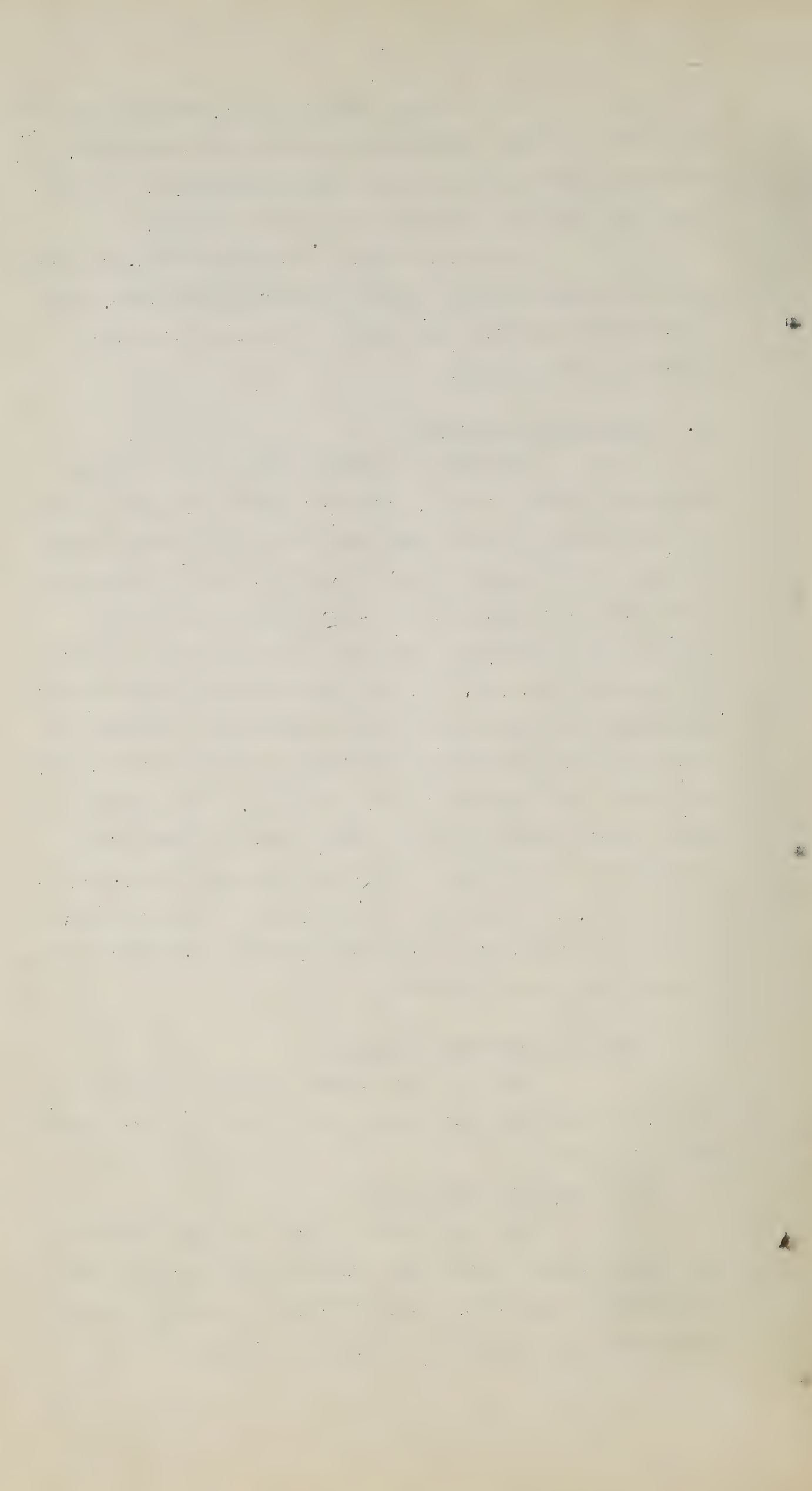
Although no accurate estimate can be made, individual visits to hike, picnic or simply enjoy the beauty of the valley far exceed organized group activities of this nature. Unfortunately, much of this activity is conducted under the worst conditions. Technically most of these visitors are trespassers, not sure of even enjoying a picnic meal without eviction. In such circumstances resentment and vandalism are common, and even the sympathetic landowner is faced with the alternatives of rigidly excluding all strangers or risking serious damage to his property. The provision of ample public recreation areas would itself decrease the tendency to such abuses. For those whose good nature did not respond, the abolition of any excuse for invading private property and the better supervision possible on public land should prove strong deterrents.

7. Commercial Recreation Centres

Such areas are notably lacking on the Don River, although some golf clubs and riding stables do provide other facilities.

(a) York Mills Recreation

This small area (3 acres) at Hogg's Hollow contains 8 tennis courts and a swimming pool serving about 40,000 people a season. In the winter an outdoor skating rink with a capacity of 100 people is operated.



(b) Fantasy Farm

The main outdoor activities organized here are corn and wiener roasts, hay rides and sleigh rides. Relics of the old farm and mill are used as decorations. Three buildings used for parties will accommodate 140 people for dancing. The property is 9 acres in size and situated on Pottery Road.

The foregoing account reveals that, with the exception of golf courses, the developed recreation facilities of the Don are almost entirely urban in type. Possibilities for rural or semi-rural recreation are many, but their present use is largely on sufferance of private owners, subject to withdrawal at any time. Action is needed, therefore, if the present facilities are to be maintained or increased.

Only two of the eight golf courses are open to the public, and one of these is in imminent danger of being converted to other purposes.

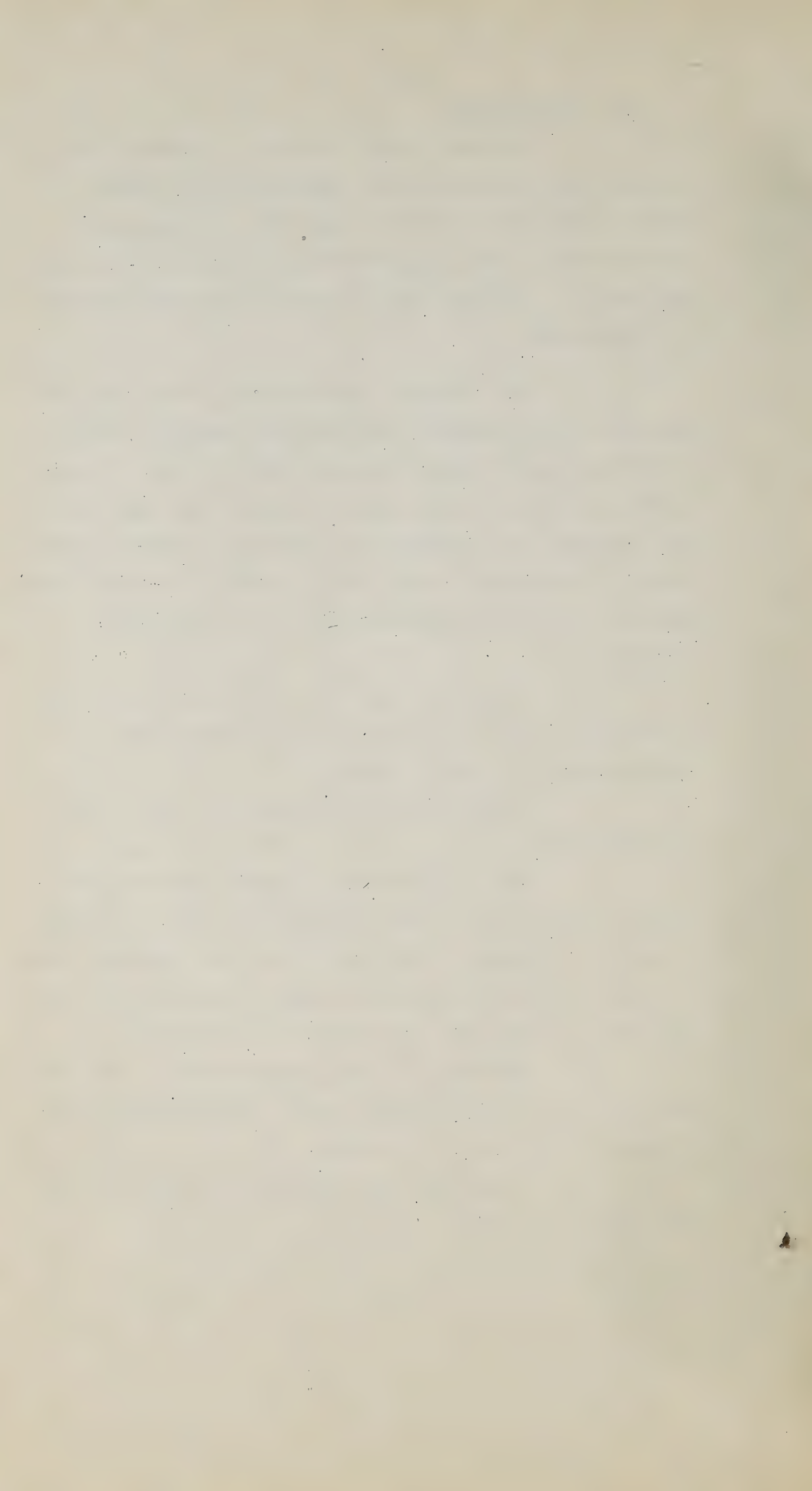
Riding academies flourish but fear the loss of their trails.

Many organizations promoting healthy group activities are happy to use the valley, and such work could be greatly increased. The lack of sanitary facilities and of the adequate patrol desired by these organizations is a serious difficulty under the present land ownership.

Swimming holes are commonly used. Some of them are in seriously polluted water. Good swimming facilities are almost entirely lacking.

Winter sport possibilities are many but have been largely neglected.





## CHAPTER 3

### POLLUTION

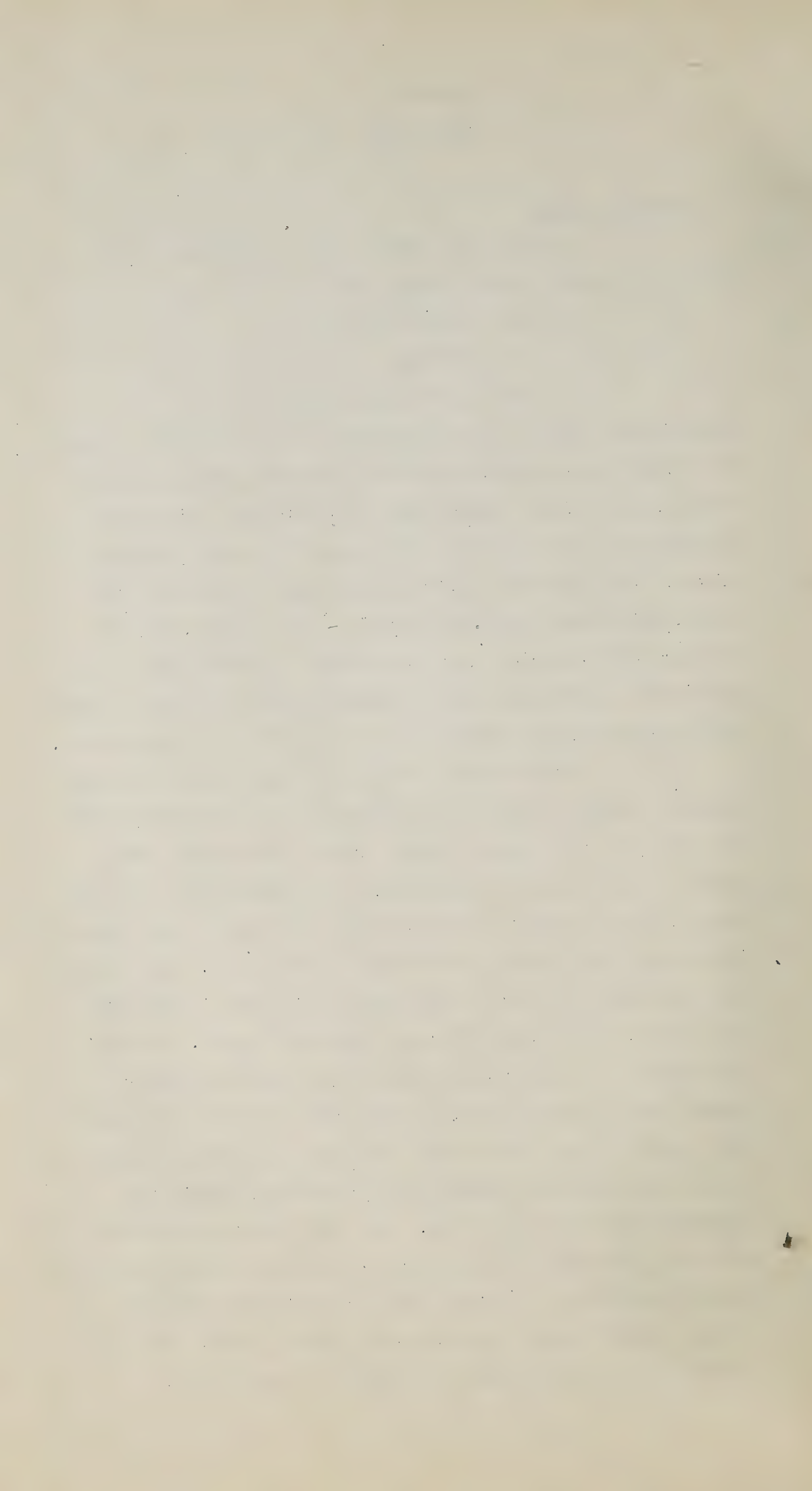
#### 1. Present Status

In Southern Ontario river pollution results from three chief causes. These are:

- (a) Sewage wastes
- (b) Cattle
- (c) Industrial wastes

Pollution by cattle is not important in the Don River. There is no doubt that industrial wastes enter the river, both as refuse and as liquid wastes, but the volume and effects are insignificant compared with the amount of sewage wastes involved. The possibility of new industrial pollution, both from liquid wastes and refuse, must not be ignored, but it can hardly be expected that any attempt to reduce industrial pollution by privately owned companies would have much effect while municipalities continue to use the Don as an open sewer.

From Lansing, far up the West Branch and from Pharmacy Avenue on Taylor Creek down to the lower reaches of the river, partly treated sewage from six municipal plants serving a population of 200,000 is now diverted into the Don River. Even in 1939 the outflow from these plants was equal in volume to the normal summer flow of the river. The plants now serve much greater populations and at times in 1949 the flow of sewage was twice that of the river itself. Most of the river is of course foul both in appearance and odour. Anyone who suggested that the whole river should be diverted into sewers in its lower course and that the channel should be left dry would be regarded with amazement, but in fact something worse has been done. Not only have the recreation value and aesthetic possibilities of the river been destroyed through many miles of actual and potential park land, but a serious health menace has also been created, since children still wade and swim in polluted water at many points.



No easy solution presents itself, but the problem of sewage treatment in the whole area of Greater Toronto has been very carefully examined by consultants to the Toronto and York Planning Board, and an adequate report prepared<sup>1</sup>. The subject is summarized in the 1949 Report of the Toronto and York Planning Board<sup>2</sup>. A few salient points from both the original report and the Planning Board's Report follow.

## 2. Existing Sewage Disposal

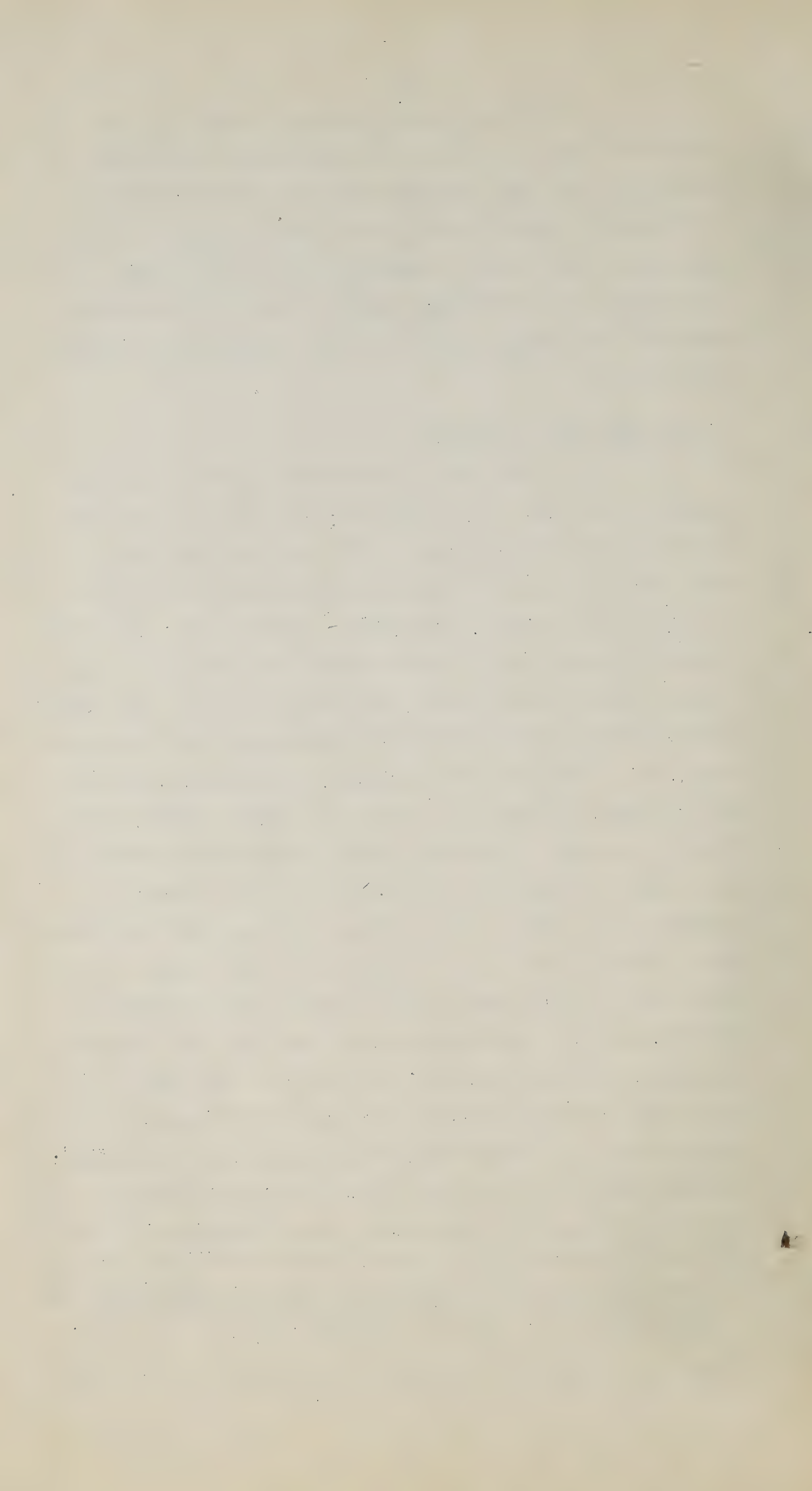
In the City of Toronto all sewers are of the combined type, i.e. sewage and storm water in the same sewer. This puts a very heavy strain on the settling tanks and in some cases means that diluted raw sewage passes out through the effluents at times of high flow of storm water. The North Toronto treatment plant receives sewage and storm water from a large part of North Toronto, the Town of Leaside, the Village of Forest Hill and parts of York Township and North York Township. This plant gives both primary and secondary treatment and is modern and efficient, but it is already loaded to its limit of capacity. The plants serving Scarborough and East York (Danforth) discharge effluents into Taylor Creek, a tributary of the Don. The two plants serving North York Township discharge into the West Branch of the Don between Wilson Avenue and Sheppard Avenue. The Todmorden plant discharges its effluent into the main Don River just below the junction of the east and west branches. All the last five plants are overloaded, "resulting in the discharge of effluents of low quality carrying a large amount of pollution into the stream". From the results of tests made by the Provincial Department of Health, it is estimated that the six plants contribute a total

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1. Report to Toronto and York Planning Board on Water Supply and Sewage Disposal for the City of Toronto and Related Areas. (Gore and Storrie, Toronto, September 1949).

2. Toronto and York Planning Board Report, December 1st, 1949.





of 6,500 pounds of suspended solids into the river on the average day. Tests showed the presence of bacteria of the group *Bacillus coli* varying from 1,000,000 to 1,000,000,000 per 100 c.c. These data indicate that drastic steps are necessary.

Sewage treatment on the Don presents one additional problem in recreation planning. The North Toronto treatment plant lies on the edge of the proposed Green Belt. Very little of the sludge produced at this plant has been hauled away although it has a fair value as fertilizer. The present accumulation is already troublesome. Eventually it must be made marketable or incinerated. Its transfer by pipe to the Ashbridge's Bay plant does not appear to be feasible.

### 3. Proposed Sewage Disposal

The report recommends the building of several large new conduits (interceptors), and the incorporation of secondary (activated sludge) treatment at the new Ashbridge's Bay plant. The new sewers will have the final effect that all the subsidiary plants along the Don and its tributaries will eventually be disused except the North Toronto plant. "Until the above interceptors have been constructed, the operation of the existing sewage plants on the Don River and its tributaries will have to be continued and in some cases may have to be enlarged". It is made quite clear in the report that there can be no expectation that the lower part of the Don River in the foreseeable future will be entirely free of sewage effluents. The report recommends that the effluents from all plants should be treated adequately with chlorine during the summer months. It also recommends that the polluting load in the Don should not exceed 2,500 pounds of suspended solids and 2,500 pounds of B.O.D.<sup>1</sup> per day on the average. When this objective

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1. The B.O.D., or Biochemical Oxygen Demand, is a measure of the oxygen needed to stabilize the decomposing matter in water by bacterial action. It provides an excellent measure of the intensity of pollution from sewage.



of 2,500 pounds of suspended solids is compared with the present estimated load of 6,500 pounds per day, the drastic changes which are now needed become evident.

Experience on other rivers of Southern Ontario, such as the Grand, Avon and Nith, indicates that even where the effluent is of fair quality it usually fertilizes the water with nitrates so much that it promotes a heavy growth of algae lower down the stream. The algae eventually die, putrefy and give off offensive odours. Hence even an efficient sewage treatment plant makes a stream offensive.

The objective should certainly be that the Don River becomes:

- (1) Biologically safe
- (2) Free of visual signs of pollution
- (3) Free of heavy growths of algae

Several of the suburban municipalities appear to be quite unconcerned about the present or future condition of the Don River and its tributaries. Since the upstream plants now polluting the Don are servicing rapidly growing populations, there is little doubt that these municipalities are intending to allow increased pollution loads to enter the Don.

The primary requirement for solving the present problem is unified control of sewage treatment, water supply and storm water drainage in the metropolitan area of Toronto. Many cases are cited in the Gore and Storrie report of handling sewage commonly for separate municipalities. Solution of the problem did not necessitate annexation in any of these cases, but there is little doubt that amalgamation of the various areas concerned in York County could result in a unified and co-ordinated attack upon the present sewage problem.

Two of the recommendations in the report follow:

"Except where a system of combined sewers has been established all sewers constructed in the future in the related areas should be of the separate type." "The cost of cleaning up the lower reaches of the Humber and Don Rivers





to make them safe for bathing would appear to be prohibitive. It would be more practicable and less expensive to construct swimming tanks along the lower reaches of the rivers." While additional summer flow in the Don is to be desired, the section on Water of this report shows clearly that large dams to store enough water to materially increase the summer flow are not economically feasible on this river.

The most logical approach to control of pollution of the river is well summarized in the final recommendation of the Gore and Storrie report. "The setting up of a Metropolitan Area Authority should cover all thirteen municipalities. This is the only satisfactory and efficient way to secure a unified control so that all sections of the related areas will be called upon to adhere to the same standards and conditions so far as water supply, sewage disposal and storm water drainage are concerned."



## CHAPTER 4

### PROPOSED GREEN BELT

#### 1. Introduction

The major recommendation of this report is the implementation of the Green Belt plan which has already been proposed and recommended by the Toronto and York Planning Board. For those who are not familiar with Green Belt plans the objectives are here described in detail.

The present plan of Toronto is a gridiron pattern of streets within the framework of the original concession roads and side roads designed simply to provide access to the maximum possible number of house lots<sup>1</sup>. Normally each additional residential building development in the Toronto area has been a suburban development with the town on one side and the country on the other. The very important amenity provided by the open-country suburban developments is automatically lost as soon as a new subdivision is built up beyond the existing boundary. This pattern of development has been similar in many cities on the North American continent. A few of the larger cities in North America and many in Europe were fortunate in that commons were always reserved as green spaces and not built upon. Typical examples of such commons, which have proved of enormous value to the cities involved, are Hampstead Heath and Putney Heath in London, England, and the Boston Common, now a large park in the centre of Boston, Massachusetts.

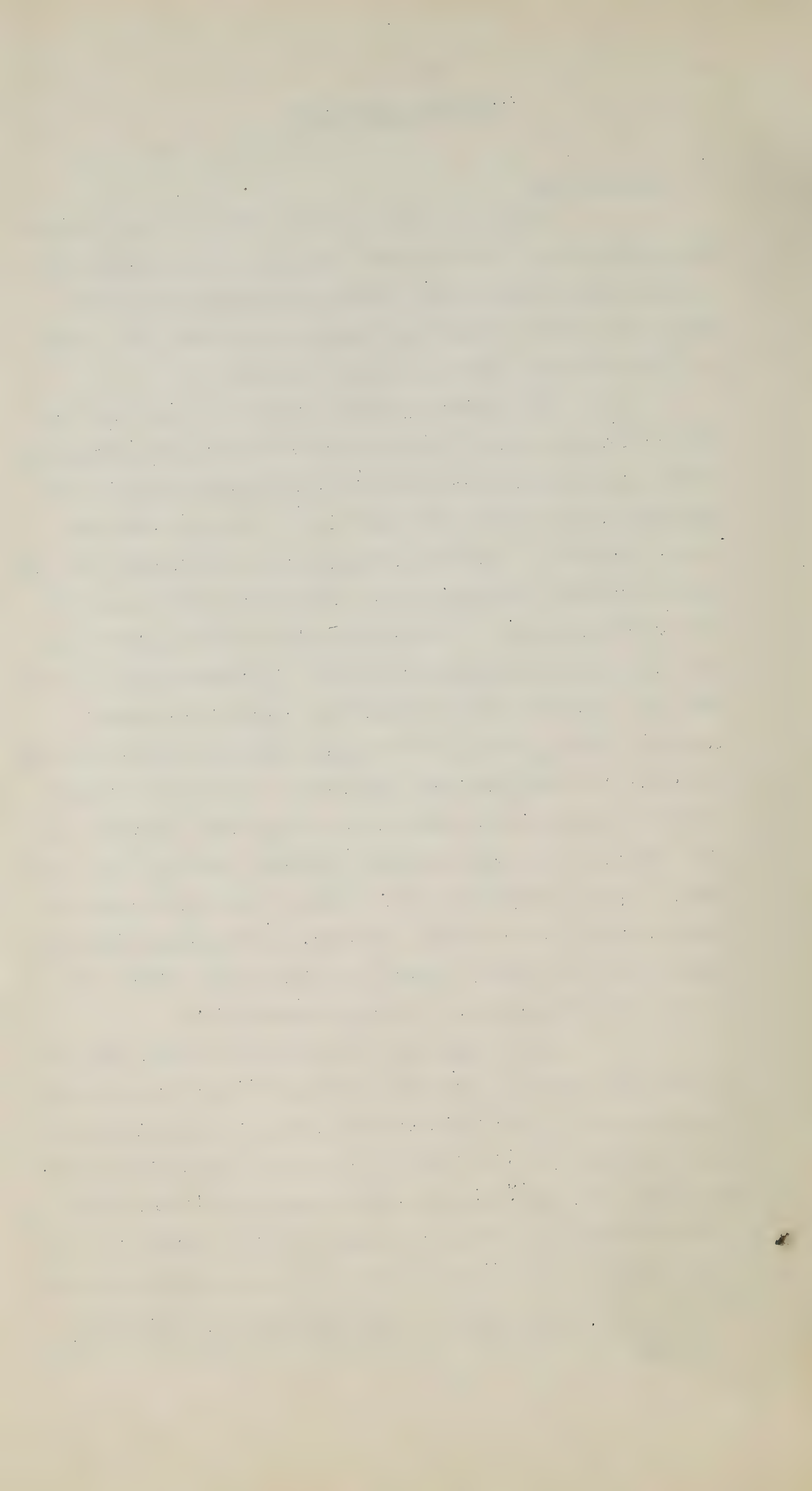
The accompanying illustration showing the plan for the development of the City of Toronto drawn in 1788 shows the inner part of the town surrounded by a common which might have fulfilled quite well the functions of a Green Belt. This was based on a standard plan which became part of the regulations of the Land Office of Canada in 1789. A belt of

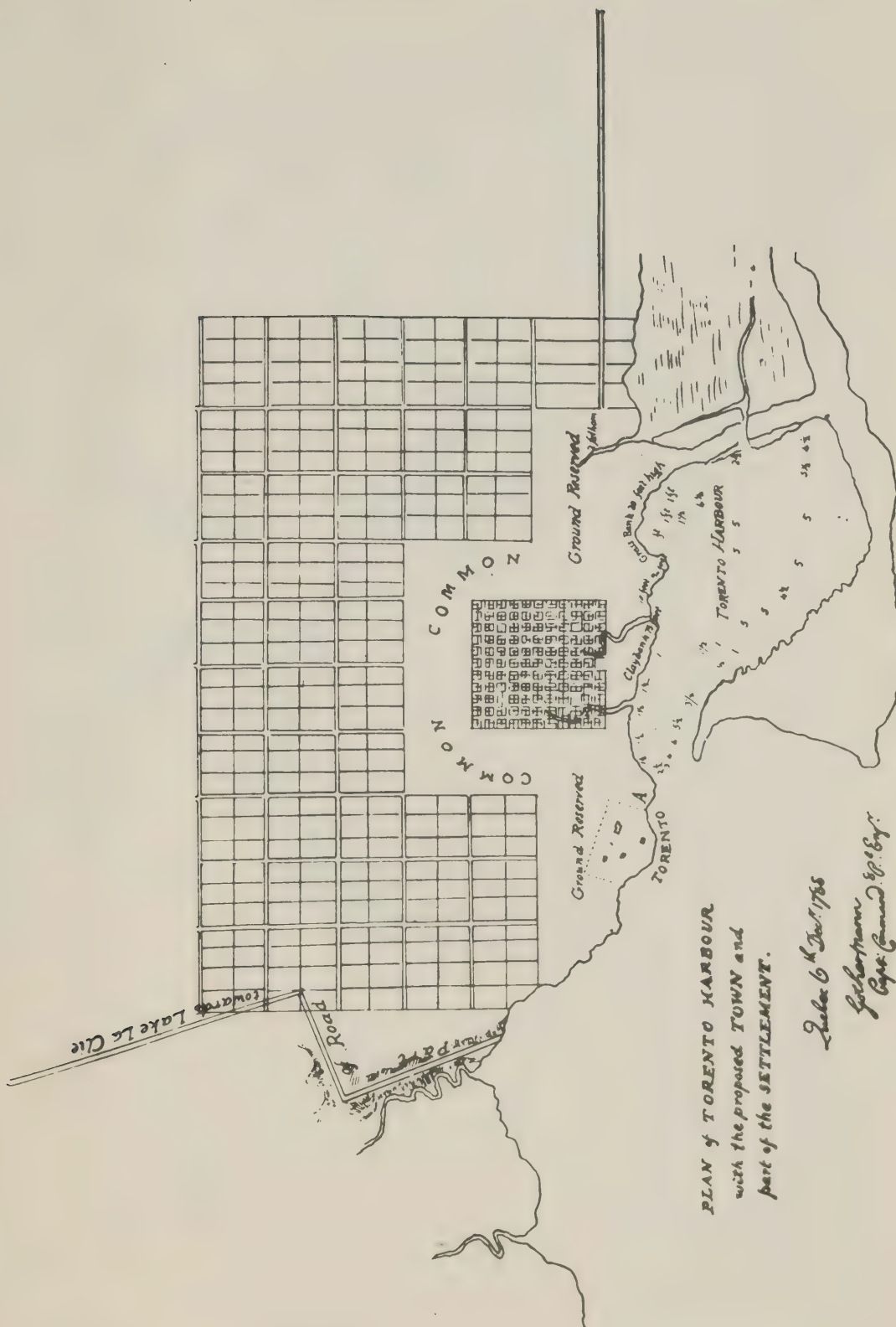
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1.

The Second Annual Report of the City Planning Board of Toronto, 1943, has been freely quoted or summarized in this section.







CAPTAIN GOTHER MANN'S MAP  
Proposed Plan of Toronto, 1788.



# RECREATION

- | EXISTING FACILITIES | PROPOSED FACILITIES                            |
|---------------------|--|
| PARKS               | GREEN BELT (PARKLAND)                          |
| GOLF COURSES        | PICNIC SITES (1-8)                             |
| RIDING STABLES      | RURAL MULTIPLE USE PARKS                       |
| SWIMMING POOLS      | DON FOREST FOR ZONING AND EVENTUAL ACQUISITION |

THE GREEN BELT OUTLINE FOLLOWS THAT OF THE TORONTO AND YORK PLANNING BOARD OF 1945, WITH TWO SMALL ADDITIONS

SCALE: MILES  
0 1 2







commons was to be reserved around each town plot with a belt of small farms beyond it. This plan was later abandoned. Toronto is extremely fortunate in having a series of ravines which at this late date makes possible an encircling inner Green Belt. This belt is so situated as to be within easy access not only of the existing population on the inside, but also of the proposed outer Metropolitan Area on the outside, which is planned to accommodate a population of 450,000. The Green Belt, of which detailed plans are shown in this report, should extend the full width of each ravine, from the top of one bank to the top of the other.

The people of the city have always made much use of the ravines for recreation purposes. The following is quoted from the 1943 City Planning Board's report:

"As a first step toward public acquisition, all the ravines should be zoned for agricultural purposes only, the destruction of trees prohibited for all time, and no dumping, grading or filling allowed.

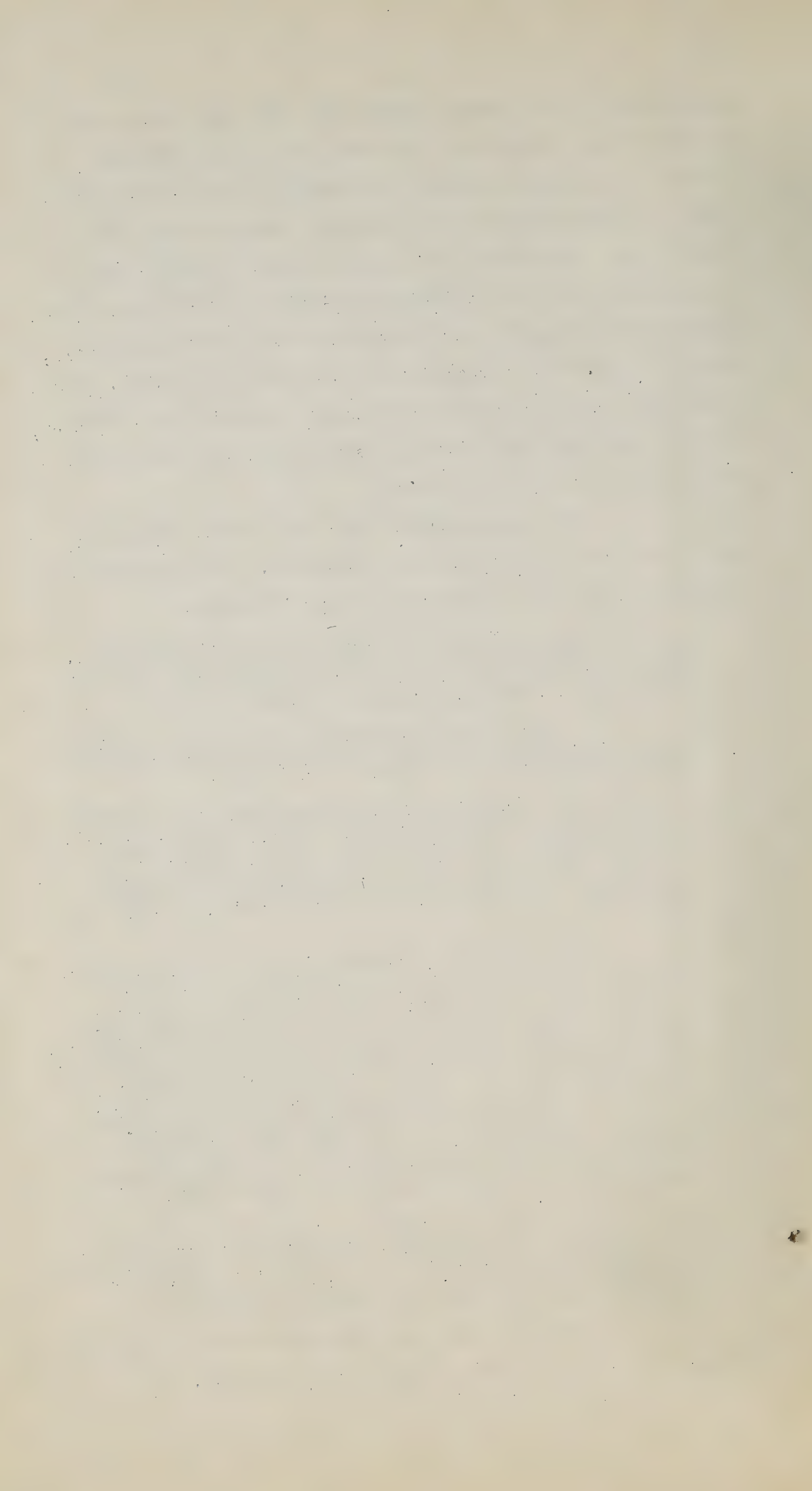
"Wide ravines with bottom flats have a grazing value and a potential building value although they are really unsuitable for residential purposes.

"A conception of this green belt as a parkway in the usually accepted meaning of the term is foreign to this report. It should not be used by any through traffic. Travel through the green belt should be at slow speed by winding roads attractive only to those persons who wish to visit the ravine parks for their own sake.

"The Board's recommendation for the establishment of the green belt and its subsidiary ravines has two purposes. In the first place they are to act as barriers between residential and industrial districts, and to break up residential parts of the City into well-defined separated neighbourhoods, arresting the spread of continuous bricks and mortar to uncontrolled limits. In the second place they are the principal open spaces of the city for both passive and active recreation. Their fortunate disposition makes possible the development of a park system second to none, so distributed as to give the greatest accessibility to all the citizens, whether living inside or outside the green belt.

"In this park system the needs of every age group should be accommodated, whether it be for active sports such as golf, softball or tennis, or the passive enjoyment of picnicking in the unspoiled natural scenery of valley, river and wooded hillside"

The Green Belt can offer attractions in greater variety than an equal area of small parks could do. In

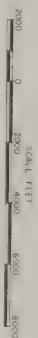




# RECOMMENDED GREEN BELT TORONTO AND DISTRICT

- LEGEND —
- LANDS RECOMMENDED FOR ZONING OR ACQUISITION
  - PARKS NOW IN PUBLIC OWNERSHIP  
(PARKS OUTSIDE THE GREEN BELT NOT SHOWN)
  - AREAS BUILT UP (1949)

THE GREEN BELT OUTLINE FOLLOWS THAT OF THE  
TORONTO AND YORK PLANNING BOARD OF 1949,  
WITH TWO ADDITIONS







addition it possesses the unique advantage of continuity, which allows a person with no greater assets than a lunch in his pocket and the spirit of adventure in his heart to escape from the tyranny of private property which normally surrounds him. Access to the Green Belt does not present any serious problems, since it can be reached on foot or by streetcar or bus by close to a million persons.

## 2. The Present Plan

The area recommended for inclusion in the Green Belt and for eventual acquisition includes 2,106 acres within the Don Watershed. This may be compared with the total in the Toronto and York Planning Board's 1949 Report of 4,791 acres, which included lands in both the Humber and Don drainage basins.

Much study has already been given to the Green Belt by municipal planning boards, and much of the detailed development may be the subject of local planning. Consequently no attempt is made here to set the locations of such facilities as nature trails, an arboretum or a zoo site, all of which may well find accommodation within the Green Belt. The details given below, therefore, are mainly comments upon the 1944 Plan<sup>1</sup> and not intended as complete descriptions. The general Green Belt outline shown on the Recreation map follows that of the earlier Plan, but certain additions have been made where these might help the Green Belt to achieve its maximum usefulness. References to sections are to those of the detailed 1944 report.

### (a) Section 9: Gerrard Street to the Forks

Riverdale Park at the south end of this section is already a large park centre. North of the Prince Edward Viaduct the present railways, projected highways and the brick-works confine development mainly to such uses as playing fields

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1. Third Annual Report of the City Planning Board, Toronto, 1944.







*This simply constructed skaters' shelter gives harmonious results at very low cost. It can provide a large warming room, food concession and toilet facilities.*



*The simpler the rendering of an outdoor theater the more fitting in a natural park. Here is an example that does not pretend to outdo its surroundings.*



*The appealing charm of this little concession building is not limited by its practical usefulness and economy of construction.*





or community gardens. Unsightly features should be screened off by rows of trees. More frequent access routes are badly needed.

The industrial section along Beechwood Drive should be confined to its present small area east of the river. The present East York Dump west of the river should eventually be covered and added to the Belt.

Todmorden Park already provides much needed facilities, and may be expected to require expansion as its use increases. It might well be enlarged to include the broad flats downstream from the present park area.

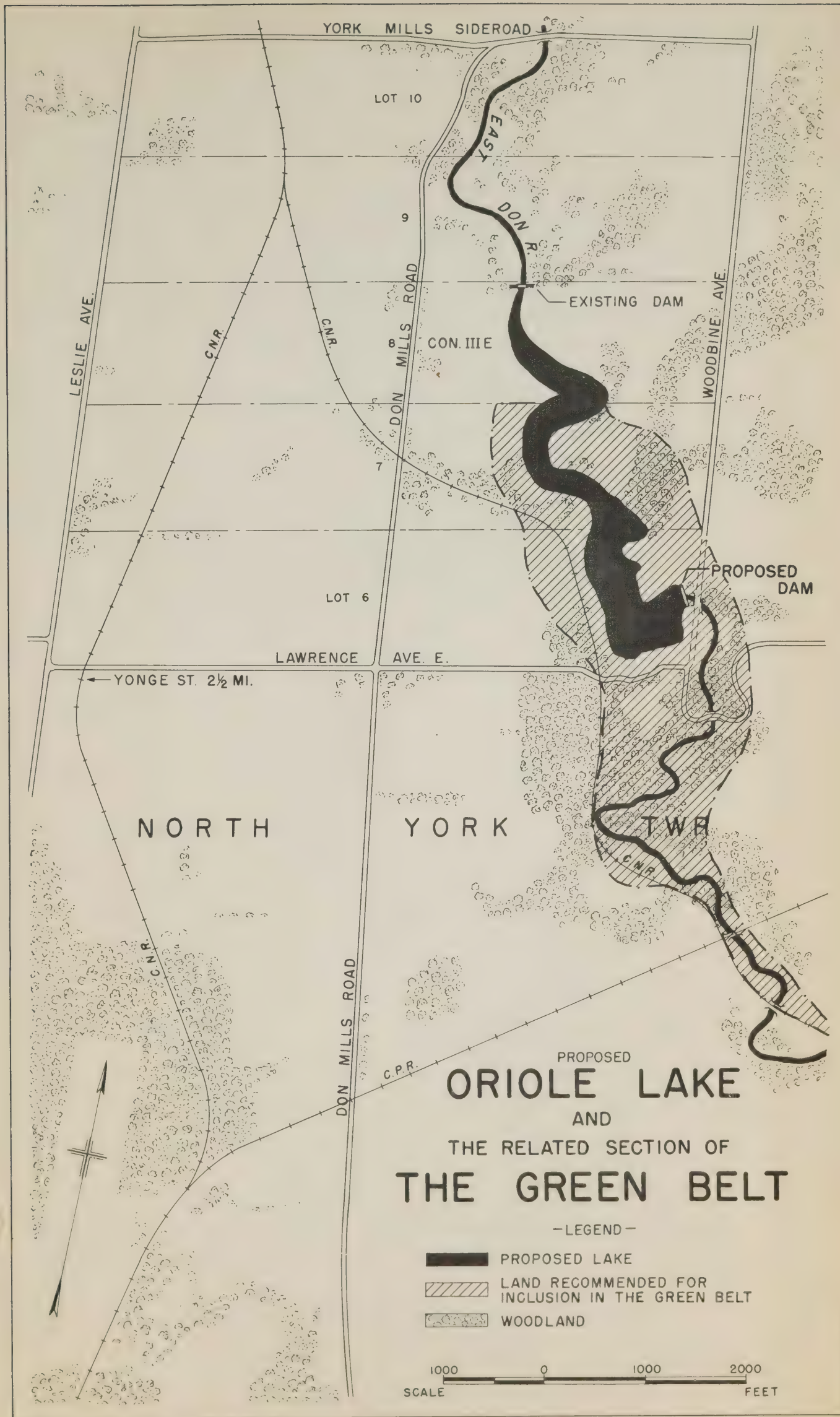
Sugar Loaf Hill, just south of the bridge at the Forks of the Don, includes 20 acres suitable for development. Part of it should be considered for an open air theatre. Appropriate marking of historic sites in this section and elsewhere would add considerable interest to the area.

(b) Section 10: East Branch North from the Forks

No detailed outline for this section was given in the 1944 Plan. The present Green Belt map shows it extending to a point half a mile north of Lawrence Avenue. The series of small flats south of Lawrence Avenue are more suitable for hiking and camping than for large park developments. Better paths and footbridges are needed to avoid the present dangerous and illegal travel along the railroad. Access routes to this valley should be protected as the district becomes built up. The Harris estate, immediately south of the Hydro Electric Power Commission of Ontario's line, appears to be the most attractive area in this section for immediate park development.

The Hydraulics section of this report recommends two damsites for the production of recreation lakes. One of these, the Oriole Damsite, lies just north of the Lawrence Avenue bridge over the Don. This would make a most attractive lake of 17 acres. This lake is particularly easy of access.









The area, if selected for official inclusion in the Green Belt, should be given immediate attention, since there is a large and rapidly growing refuse dump close to the damsite. The dump, like many others in the Green Belt, is not an authorized municipal disposal area. It now covers a part of the bank of the river formerly used for picnicking. Prosecution of one or more offenders would probably stop the present malpractice. The accompanying map shows the relation of the proposed dam and lake to the Green Belt outline.

(c) Section 8: East from the Forks

Much of Taylor Creek Valley is already publicly owned. This section could well be extended, as shown on the accompanying map, to a point beyond Walden Avenue. The Crescent School property could be included in the Green Belt for zoning purposes although its present use need not be disturbed. With a little improvement the Woodbine Golf Course, now somewhat run down, could be made into an excellent municipal golf course or used as a site for a new zoo.

(d) Section 7: The Forks to Sunnybrook

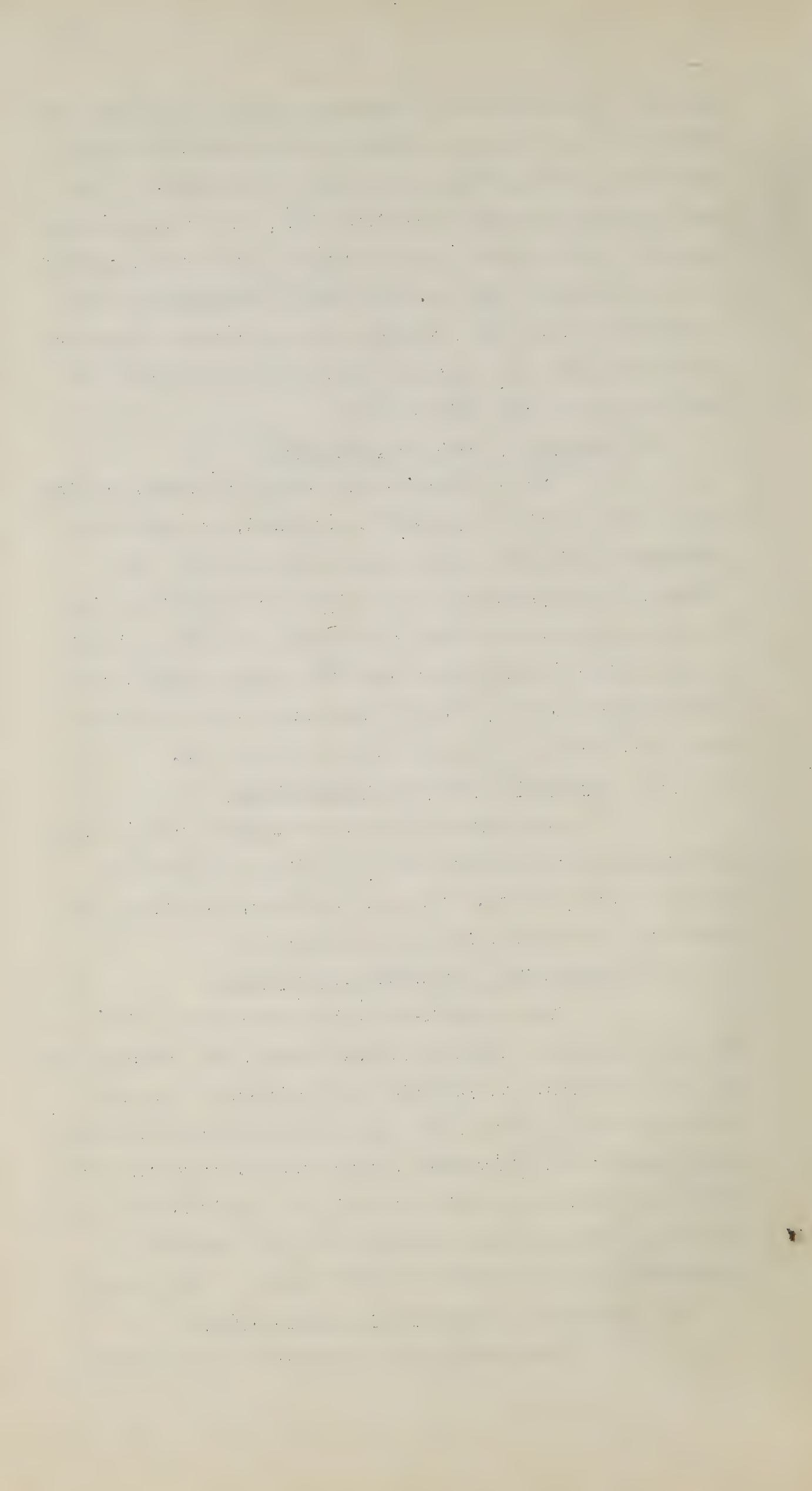
For large-scale park development with a variety of attractions no section is better suited than the main valley in this section. This is, therefore, one of the most important sections for immediate acquisition.

(e) Section 7A: The Wilket Creek Valley

The Wilket Creek Valley contains one of the finest stretches of woodland around Toronto, and should be kept in this condition. An extension of the Green Belt up this valley at least as far as the International Business Machines Golf Course north of Lawrence Avenue would preserve the foot-paths and bridle paths which soon will be sorely needed in this rapidly growing section. Possibilities are excellent for developing swimming facilities at the mouth of this stream.

(f) Section 6: Sunnybrook to Hogg's Hollow

The cessation of recreation use of Sunnybrook



Park through its lease for a military hospital is a very serious loss to this section. Sunnybrook Park is almost surrounded by a residential district which is rapidly growing in population. When every possible allowance has been made for the healing value of peace and quiet in green valleys and forested slopes to convalescent patients, the area still seems very large for the uses intended. Not long ago this part of the Don Valley was the mecca of naturalists and hikers. Now guards prevent the general public from even walking in the 250 acres of park.

A wide public right of way through the valley just east of the river could easily be arranged without upsetting the appearance of the valley or its primary use. The annoyance to the hospital authorities caused by travel through the main hospital area could be overcome by providing foot-paths along the ravine between Sunnybrook and Divadale.

The large estates north of Sunnybrook are not in immediate danger of subdivision. Here the main need is a public right of way along the valley. When, however, such estates fall into executors' hands, acquisition of the valley portions should be attempted at once.

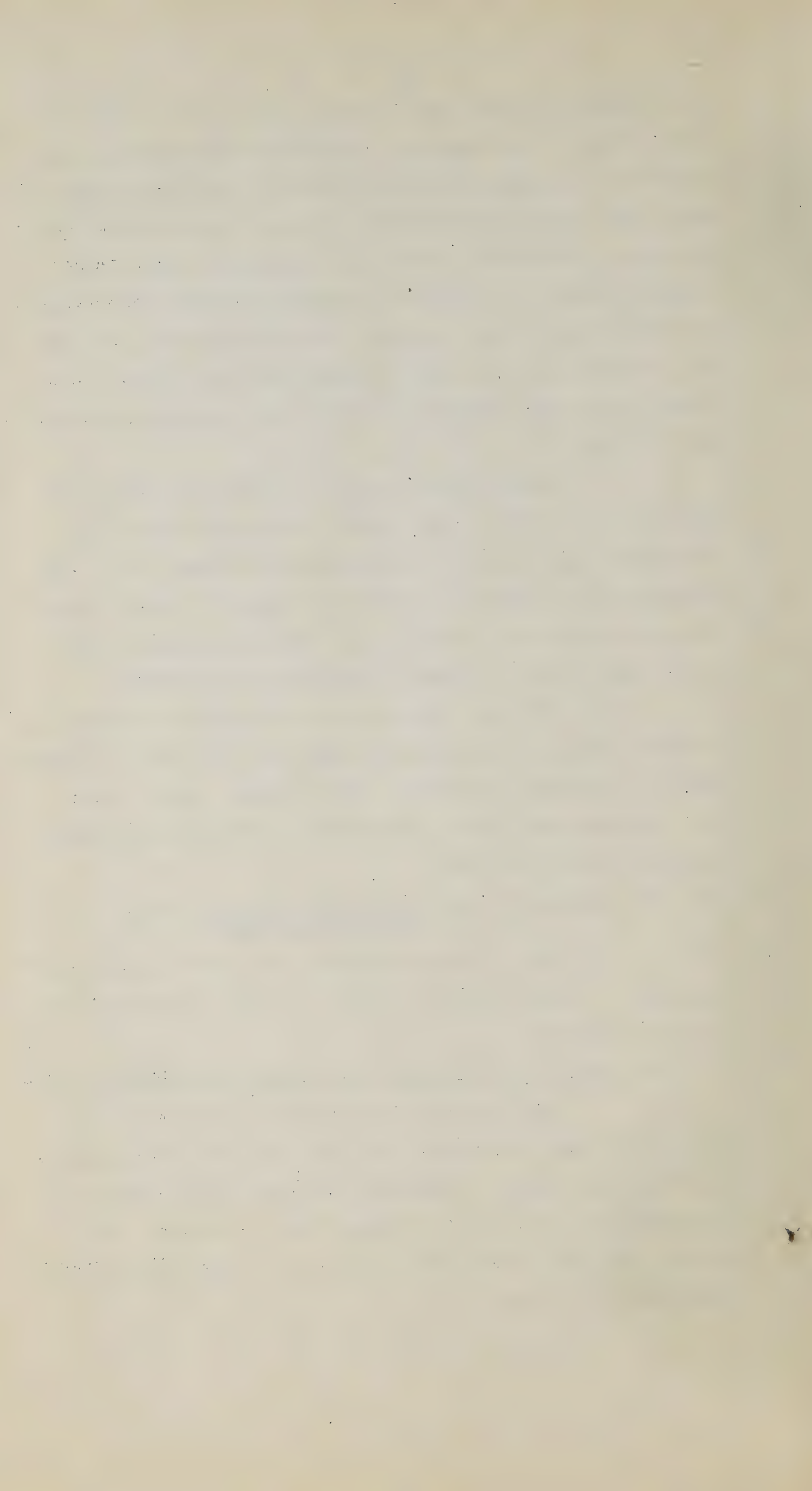
(g) Section 5: Hogg's Hollow to Bathurst Street  
and Sheppard Avenue

Part of this excellent park centre has now been acquired. A public right of way past the York Downs Golf Club is still required.

(h) Section 4A: Sheppard and Bathurst to Dufferin Street

This extension up the valley and westward by a side ravine toward the Black Creek area has been proposed by the Toronto and York Planning Board in lieu of the rather unattractive Section 4 of the original plan. The major park centre, just west of Bathurst Street, is in immediate danger of being put to other use.





## SWIMMING AND WADING FACILITIES



The intensive use of the few available pools such as this one in East York shows the need for additional facilities.



Children are not slow to make use of a wading pool once it is provided.



Most of the attractive swimming pools are privately owned. This one is on the estate of George McCullagh.

1871  
1872  
1873  
1874  
1875



### 3. Improvement of Sites

#### (a) Swimming and Wading

The means to end the appalling pollution of the Don have already been discussed. The fact that many of the heavily polluted sections of the river are still used for swimming emphasizes the immediate need for better facilities. The first objective should be a clear and permanent flow in the small headwater streams. Soil conservation measures listed elsewhere in this report should eventually achieve this result. Small and inexpensive dams would then provide swimming pools in these sections of the valley. On larger streams make-shift stone dams now provide swimming holes for small groups, but hygienic conditions are better ensured by constructing bypass ponds through which river water is diverted. Silt removal and any other necessary treatment can be performed at the intake.

Since no complete solution of the severe pollution lower down the river appears to be economically feasible, swimming tanks are a necessity in this part of the valley. The plans prepared by the Commissioner of Parks and approved by the Toronto City Planning Board include two open air swimming pools, one close to Riverdale Park, the other at Pears Park, on Eglinton Avenue. They would go far towards eliminating the present amount of bathing in the polluted water.

Large multiple-purpose dams which form permanent lakes are useful for both recreation and flood control, but as a rule can be justified only where a major flood problem exists. Two other types of dams, the dry dam for flood control and the storage dam whose waters are gradually released in dry periods, are of considerable indirect benefit to recreation, but do not themselves provide recreation sites. The suitability of various types of dams for the Don Watershed is discussed in the Hydraulics section of this report.

#### (b) Park Services

The need for a systematic patrol of the Don





*Simplicity of design combined with good legibility makes this an ideal type of signpost.*



*Bold lettering and unusual design make this an imposing entrance sign.*



*Low cost, suitability for quantity production, simplicity of installation and range of orientation in adaption to prevailing winds make this a most useful picnic fireplace.*



*Informality is the keynote of this stone fireplace, with its convenient raised hearth.*







*A practical and sanitary type of refuse container.*



*This elementary open top incinerator is convenient and simple to build.*



*Such necessary facilities can be provided inexpensively and without creating an eyesore.*







Valley to keep it safe from undesirable persons and to curb vandalism was stressed in answers to questionnaires sent to many welfare organizations during the survey. The provision of a park patrol therefore is strongly recommended. It might be expected to considerably increase the use of the valley for recreation. The men should be employees of the Conservation Authority. The essential requirements here would be that they should be sworn in as constables by the municipality in which they work and that they should be in uniform.

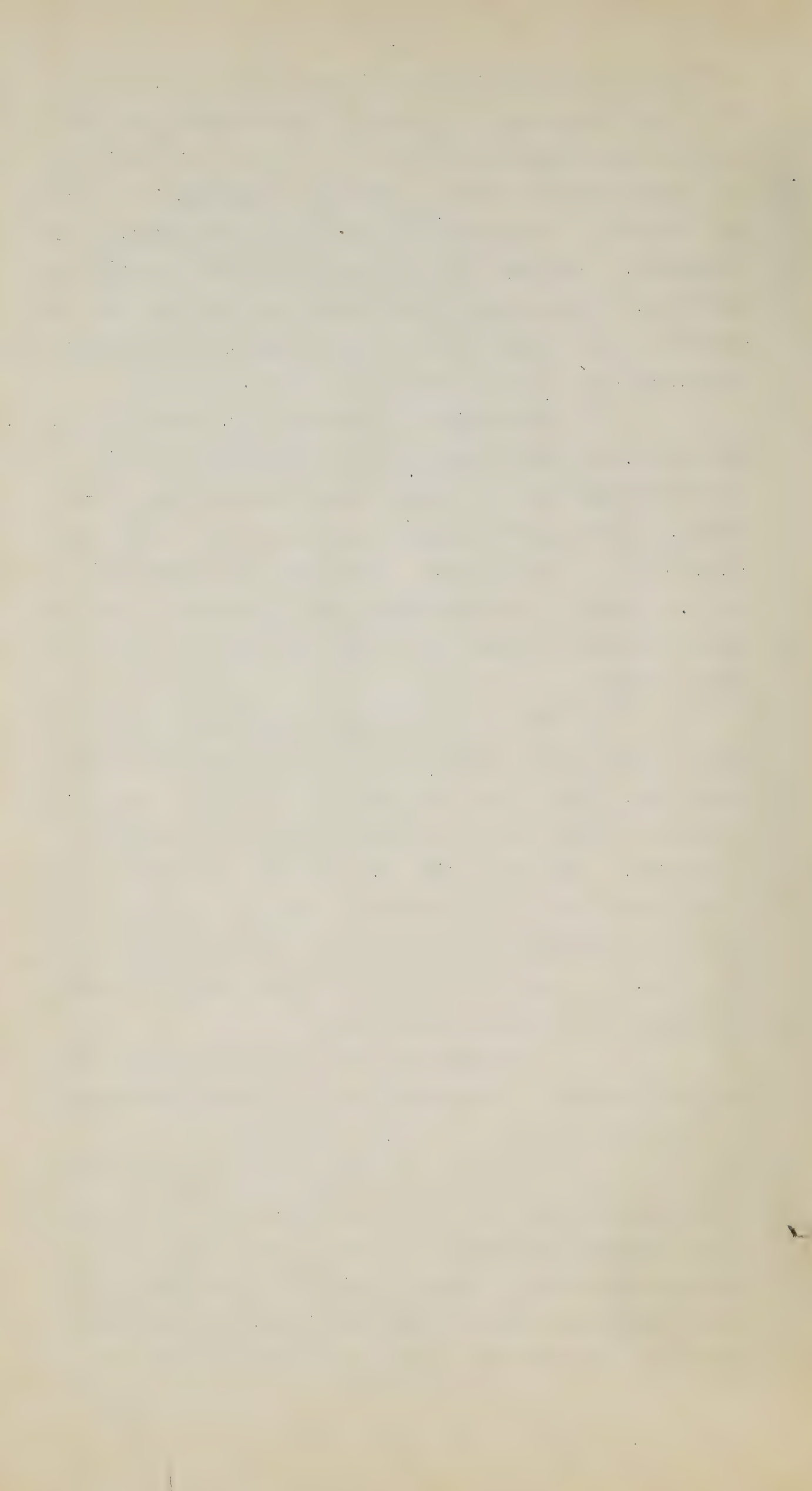
The provision of drinking water, picnic tables, fireplaces, garbage receptacles and toilet facilities are essential improvements at points where intensive use is expected. Companionship around a campfire is one of the greatest pleasures of a hiking group. Inevitably such fires will be built. Numerous fireplaces will make the campfire a desirable form of enjoyment rather than a cause of vandalism and a threat to the woods.

The ideal park would consist of an intensively used area, with facilities such as picnic grounds, children's play areas, sports fields and swimming and wading pools, surrounding an administration building including a refreshment concession. From here paths would radiate out towards the less crowded parts of the park where unspoiled woods and more natural surroundings will attract those who are not interested in sports. A suggested treatment of such a park, in keeping with modern planning, is illustrated.

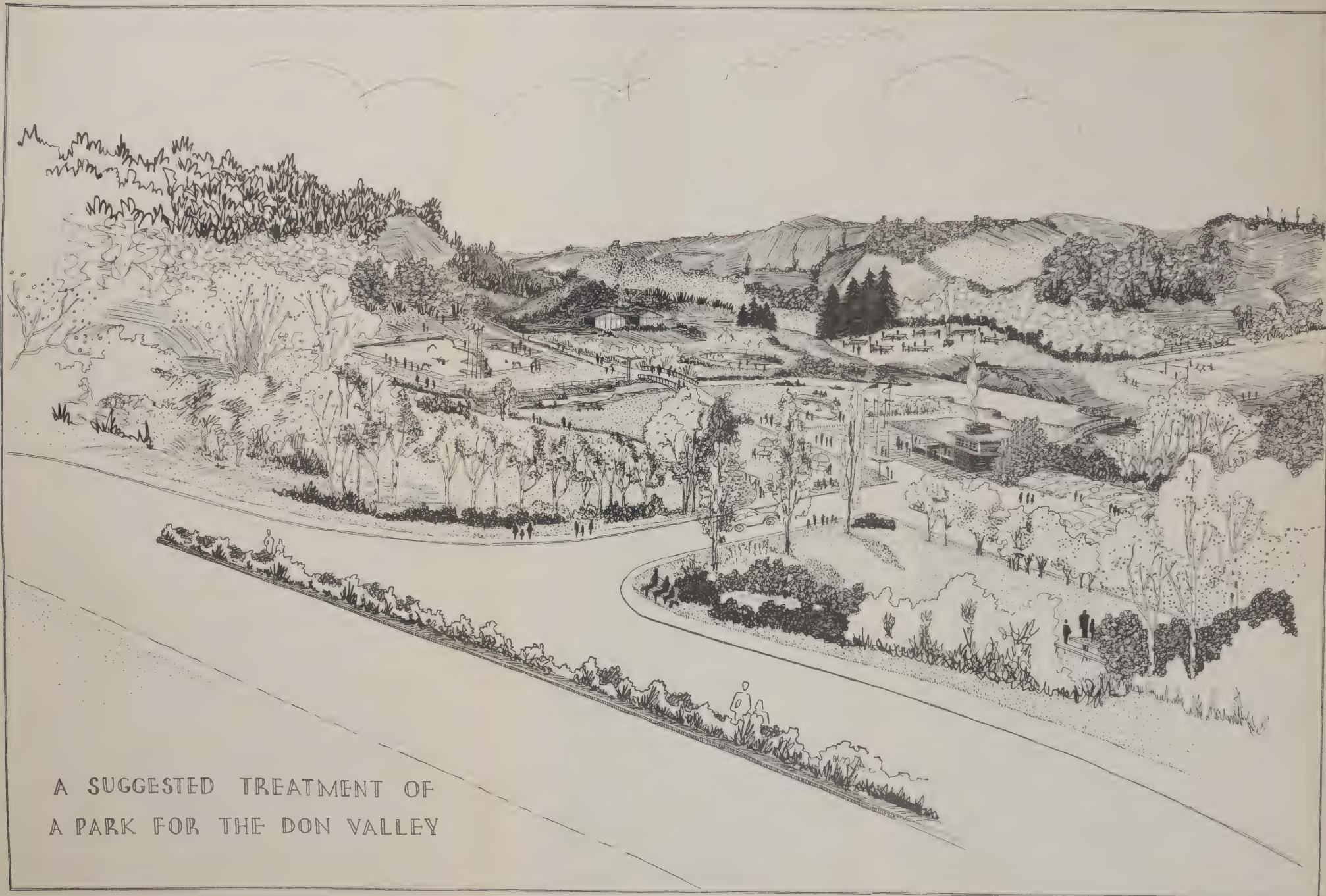
It is important that minimum standards be set for the operation of concessions for the sale of refreshments.

(c) Poison Ivy

Poison Ivy (*Rhus toxicodendron*) is common in the valley, but need not be a serious problem. It may be controlled either by repeated sprayings of 2-4-D or by a single treatment with sodium chlorate. Such work might be undertaken by volunteer organizations under proper supervision. The possibilities of co-operation from such public-spirited individuals and







A SUGGESTED TREATMENT OF  
A PARK FOR THE DON VALLEY





groups should never be overlooked. The action of various governing bodies is necessary for the undertaking of major projects. At the same time, voluntary effort, properly encouraged and directed, may make possible at an early date many improvements which otherwise would have to be deferred indefinitely.

(d) Mosquitoes

Mosquitoes are a serious detriment to recreation in some parts of the Green Belt. Some species breed in temporary pools in wooded areas. Other species breed in permanent unpolluted pools and ponds. An excellent report on the mosquitoes of the Toronto region and on recommended methods for controlling them has been prepared for the local Board of Health<sup>1</sup>. Spraying of ponds (other than fish ponds, in which the fish normally keep mosquito populations at a low level) and of temporary pools in woodland from aircraft using aerosol sprays is recommended. This method, used on the Toronto Islands in 1947, was very effective.

Since several species of mosquito larvae are frequently found in large numbers in rain-filled cans and rain-barrels, the people of Toronto are often themselves responsible for the presence of mosquitoes in the Green Belt. In this matter education of the public to the proper destruction of cans and to spraying rain-barrels is the proper solution. Mosquitoes do not breed in city manhole traps.

(e) Relocation of the Zoo

A new site for the Toronto Zoo is now under consideration. Objections have already been raised to the acquisition of one area for this purpose. Such objections are raised chiefly by those who have never seen a modern zoological garden and are clearly based on impressions of the crowded

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1.

Urquhart, F.A. - A Survey of the Mosquitoes of the Toronto Region (Report to the City of Toronto Board of Health).





*This attractive man-made waterfall has successfully brought the aspect of naturalness to a large dam, transforming it into a delightful picnic spot.*



*A stone bridge such as this for motor traffic is graceful and harmonious with its rustic surroundings.*



*A wooden foot bridge, to be sturdy and safe, need not be elaborate. This bridge is ornamental in character.*



*A good example of a culvert-bridge designed to enhance the landscape.*







conditions at Riverdale. The Riverdale Zoo has long had an efficient staff faced with a site, buildings and services which are a legacy from the Victorian era, and which bear no resemblance to those of a modern zoological garden.

Modern zoos are a great asset to any city or municipality. They are fascinating to both young and old. They are also educational and bring many tourists into the area. The proper conditions for a zoo include an area of at least 50-75 acres, with modern buildings and excellent soil drainage. A zoo is commonly set in a larger park and combined with a botanical garden. In Toronto botanical gardens are conspicuous by their absence.

It should be added that there is no record of lowered rents or real estate values on buildings surrounding a modern zoological or botanical garden. The properties overlooking the parks in which zoological gardens are found in Detroit, London (England), New York City, Washington and many other cities have always commanded higher rather than lower rentals than the average.

(f) Bridle Paths

Since bridle paths in the valley have been decreasing at the same time that the demand for them has been increasing, plans for establishing and conserving new bridle paths appear to be well justified. The Toronto City Planning Board has recommended five suitable sites for bridle paths in the Green Belt:

- (1) In the ravine below the Prince Edward Viaduct
- (2) In Cedarvale Ravine
- (3) In the ravine below the Thorncliffe Race Track
- (4) Along Taylor Creek east of Woodbine Golf Course
- (5) At Hogg's Hollow

4. Action Recommended

The original Green Belt Plan was put forward by



the Toronto City Planning Board in 1943. It was somewhat elaborated in 1944, endorsed by the Toronto and Suburban Planning Board in 1947 and is now sponsored by the Toronto and York Planning Board. Official adoption of the plan is now urgently needed. The mechanism for its implementation has already been subscribed to by the City Council, but the plan also requires support from the surrounding municipalities and several of them have not, so far, been willing to give it their full support. Some municipalities apparently regard the establishment of a Green Belt as a new and untried idea. These ignore the fact that many cities in the United States and Europe have already established Green Belts. In England the Green Belt Act became law in 1938.

The plans put forward by the Toronto and York Planning Board of 1949 appear both reasonable and practical. The following quotation from its 1949 report sets forth the present opinion of the Board and the present status of the matter.

"No one recognizes more fully than this Board that the designation of a green belt on an official plan accomplishes nothing unless ways and means of financing the acquisition of the lands indicated are discovered. The Board, therefore, in adopting the green belt as an element in the official plan, recommends that if, as and when lands involved in the Green Belt come upon the market for sale or development they be acquired, maintained and developed by the City of Toronto and the County of York at the expense of those two municipalities in the ratio of the City of Toronto as to two-thirds, and the County of York as to one-third.

"A proposed agreement for the acquisition, maintenance and development of the green belt along these lines has been prepared and submitted to the City of Toronto and the County of York. The agreement in its financial aspects provides for the establishment of a fund of \$150,000 to be maintained at that aggregate amount annually for acquisition and maintenance of the land indicated. The intention is that over a course of years as plans are submitted for the subdivision of land, or lands can be acquired at a reasonable cost in the green belt, such lands shall be acquired by purchase or expropriation for the park purposes of the green belt and that each year the two municipalities involved will replace such amount in the fund as was used during the previous year in the ratio of the City of Toronto two-thirds and the County of York one-third. This agreement has the approval of the City of Toronto but not the County of York.





"The difficulty which stands in the way of the County's approval is basically the same as has been experienced in most, if not all the matters under the Board's jurisdiction. The green belt passes through five of the twelve suburban municipalities, some of which have already acquired park lands. In some of the five municipalities the green belt includes park lands already established as such by the local municipalities. Other municipalities through which the green belt does not pass are apathetic or openly hostile because as constituent municipalities of the County they will be indirectly contributing to the establishment of park lands in local municipalities other than their own. These objecting municipalities are unable or unwilling to envisage the advantages of the establishment of a green belt as a benefit for the whole area of which they form a part, and their attitude is an effective deterrent to the adoption of the agreement.

"The Board is satisfied that if the green belt as planned is ever to become a reality, some formula must be found that will eliminate this narrow viewpoint. Possibly a Metropolitan Parks Board might be the answer but even that might be continually under attack if it did not match its expenditures dollar for dollar in each of the constituent municipalities whether parks were needed or suitable land was available or not.

"The Board has failed to find a satisfactory formula short of unification".

The above quotations indicate that the Planning Board has given much thought to the problem of implementing its plans. There is, however, one alternative solution which has been ignored. While the problems of housing and the supply of essential services, such as transport, sewage control, water supply and others, may require some form of annexation or unification, solution of the Green Belt problem could be accomplished without waiting for such radical changes.

It is self-evident that the ravines and park-lands included in the Green Belt constitute a very important natural resource of a watershed in which a vast and congested population lives. Conservation of the natural resources is the primary function of a Conservation Authority. The Act<sup>1</sup> authorizing the establishment of Conservation Authorities states in part:

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<sup>1</sup>. The Conservation Authorities Act 1946.  
(Revised Statutes of Ontario 1946, Chapter 11. The section quoted is Section 13).



"A Conservation Authority shall have power

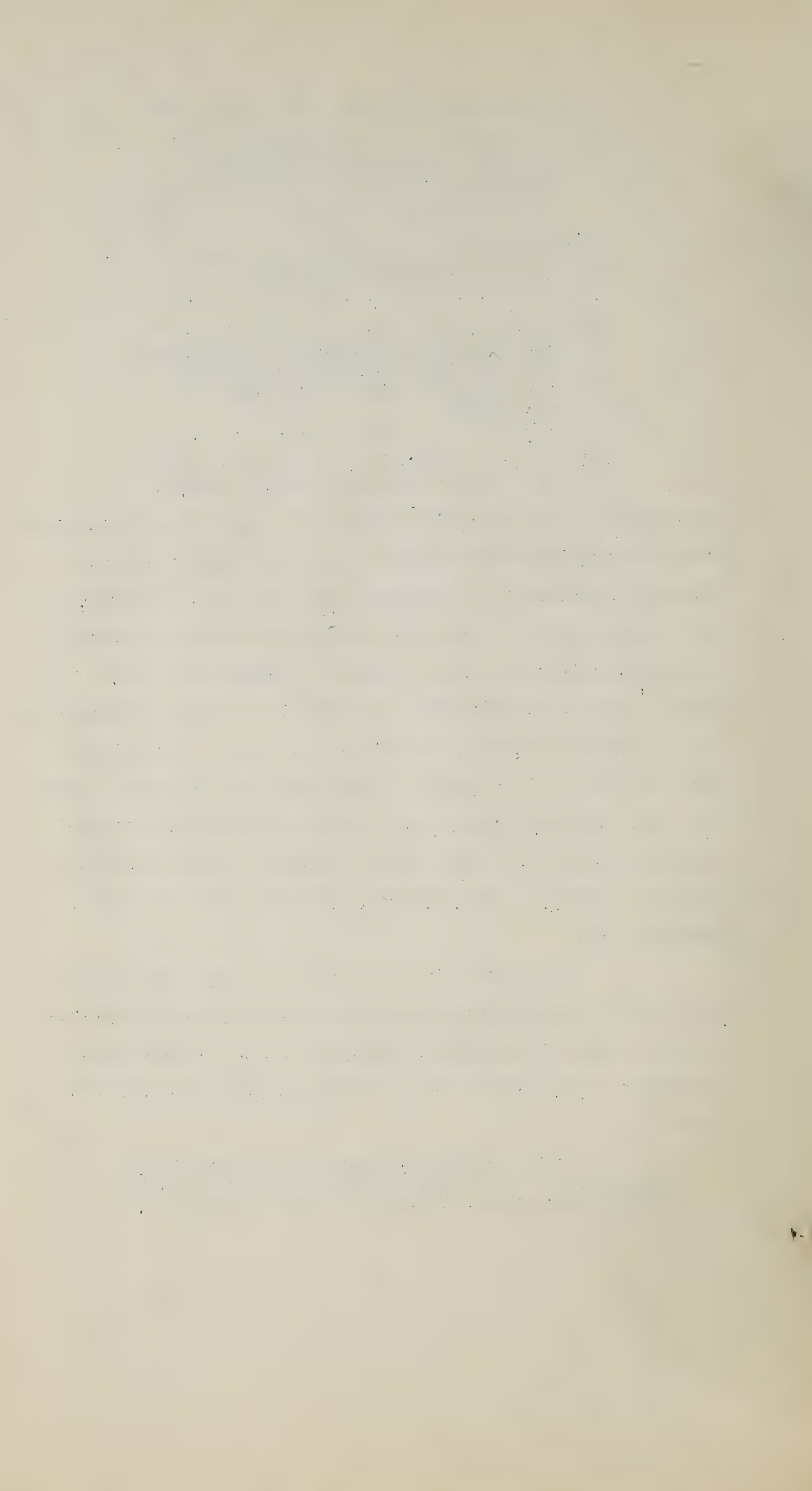
- (a) to determine a scheme whereby the natural resources of a watershed may be conserved, controlled and developed  
.....
- (d) to purchase or acquire any personal property which it may require  
.....
- (e) to enter into such agreements for the purchase of materials, employment and such other purposes as may be necessary for the due carrying out of any scheme  
.....
- (k) to do all such acts as are necessary for the carrying out of any scheme".

The municipalities including both the Don and Humber Watersheds have already established Conservation Authorities, with the necessary representation from each municipality. Therefore, so far as conservation of the resources of the Don or Humber is concerned, unification has in effect already taken place. To initiate the Green Belt Plan, all that is necessary is that the Don Valley Conservation Authority use wisely and judiciously the powers which it already has under the Conservation Authorities Act. In those cases where actual acquisition of land is not required the Authority could recommend that the area involved be zoned by a municipality under Section 406 of the Municipal Act.

While the financing of any scheme under this Act requires the distribution of the cost among those municipalities which will benefit, section 38 of the Conservation Authorities Act, which reads as follows, should not be overlooked:

"The Lieutenant-Governor in Council may make a grant to any authority out of such funds as may be appropriated therefor by the Legislature".





## CHAPTER 5

### ADDITIONAL RURAL PARKS AND PICNIC SITES

While it is understood that the Green Belt will be used for a great variety of recreational facilities and some of these have been indicated in the chapter on that subject, there are a few additional areas and facilities which should be added and emphasized.

#### 1. Rural Parks

In the northern part of the watershed three areas are recommended as suitable for acquisition as additional multiple-use parks. Much of their area is waste land, and even that classified as farm land includes chiefly farms on "marginal" land or the poorer land in good farm sections. Of the 603 acres recommended for acquisition, 523 acres lie within the headwaters tract of 2,900 acres listed as suitable for reforestation in the Forestry and Land Use sections of this report.

##### (a) Uplands Park

This is a small property of 55 acres which could easily be developed into an excellent multiple-use park. Only one-half mile west of Yonge Street on the Langstaff side road, the main valley would supply an intensive use area where swimming facilities could be developed. A small tributary stream extending to Bathurst Street affords an attractive setting for small picnic groups. Good parking areas are available on both the side road and on Bathurst Street. Below the park the river runs for nearly a mile through the New Uplands and Thornhill Golf Clubs. A ski club, with headquarters in the park and permission to use the hills downstream, would be ideally located.

The possibilities for artificial lakes for recreation in the Don Watershed are discussed in the Hydraulics section of this report. Nine locations were investigated, and two of these, one at Oriole and the other lying



PROPOSED  
**UPLANDS PARK**  
VAUGHAN TWP.

--- RECOMMENDED PARK BOUNDARY  
WOODLAND

SCALE: FEET  
500 250 0 500 1000 1500

No. 7 HWY.

EXISTING DAM

BORDER OF PROPOSED  
PERMANENT LAKE

LOT 36

LOT 35

PROPOSED DAM

LOT 34

UPLANDS  
GOLF CLUB

LOT 33

LOT 32

THORNHILL  
GOLF CLUB

LOT 31

RIVER

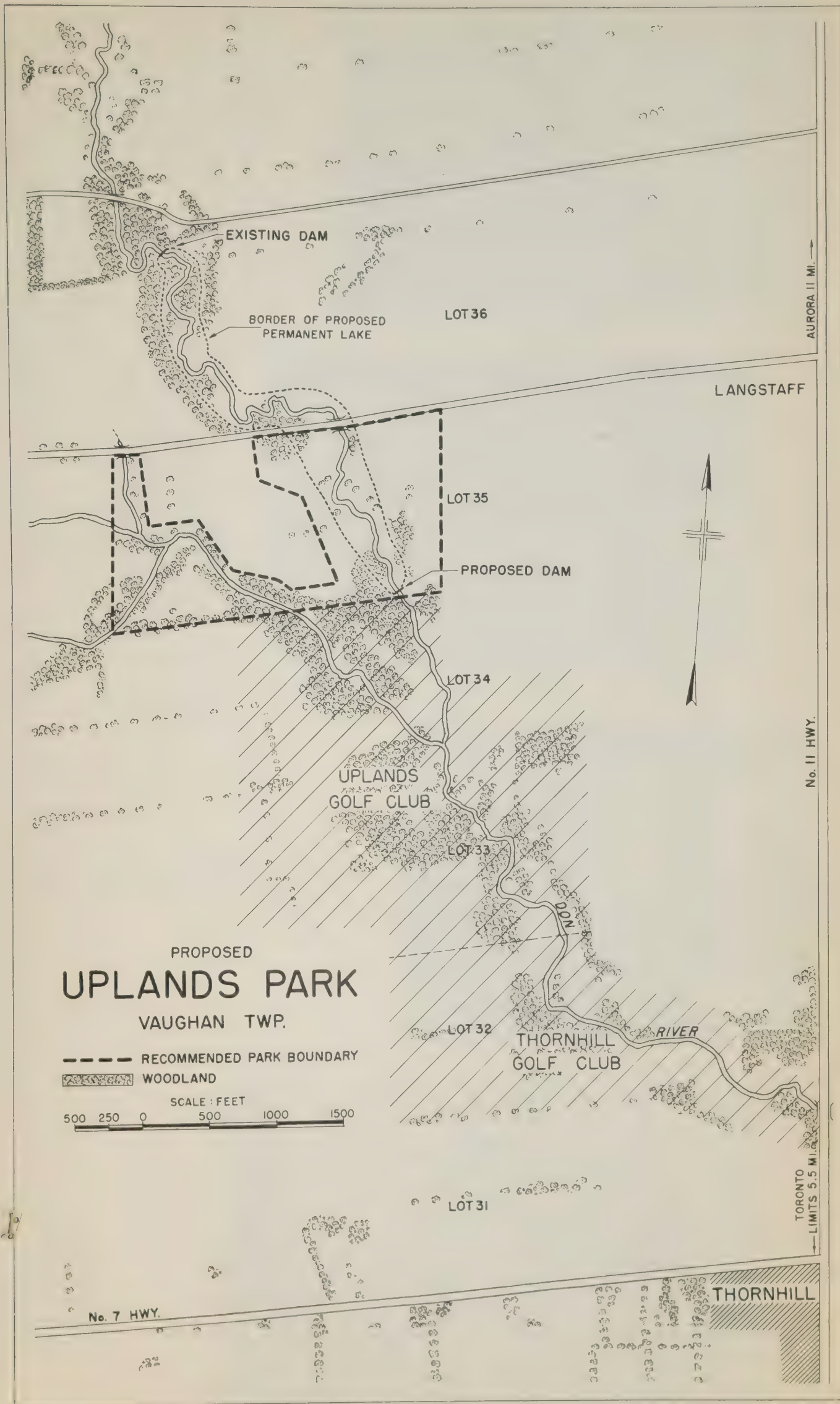
THORNHILL

LANGSTAFF

AURORA 11 MI. →

→ No. 11 HWY.

TORONTO  
→ LIMITS 5.5 MI.







*A gate such as this might well be used to mark off private property. It is simple and attractive, yet a convincing deterrent to trespassers.*



*This guard rail at a parking spot requires little maintenance due to the buffer rail at hub-cap height, and the simplicity of construction makes it easier to repair.*



*A lookout which is merely a natural vantage point of no great elevation offers a view and rail for the protection of the observer.*



*North York Township has taken a commendable stand in curbing the destruction of roadside beauty through the careless and unlawful dumping of garbage.*







within the proposed Uplands Park, were selected. The lake in this park would cover an area of 27 acres. The outline of this proposed lake is shown on the accompanying detailed drawing.

(b) Don Forest Parks

Acquisition of an area of 2,913 acres in the rolling hills north-east of Maple is recommended for reforestation purposes in the Forestry and Land Use sections of this report.

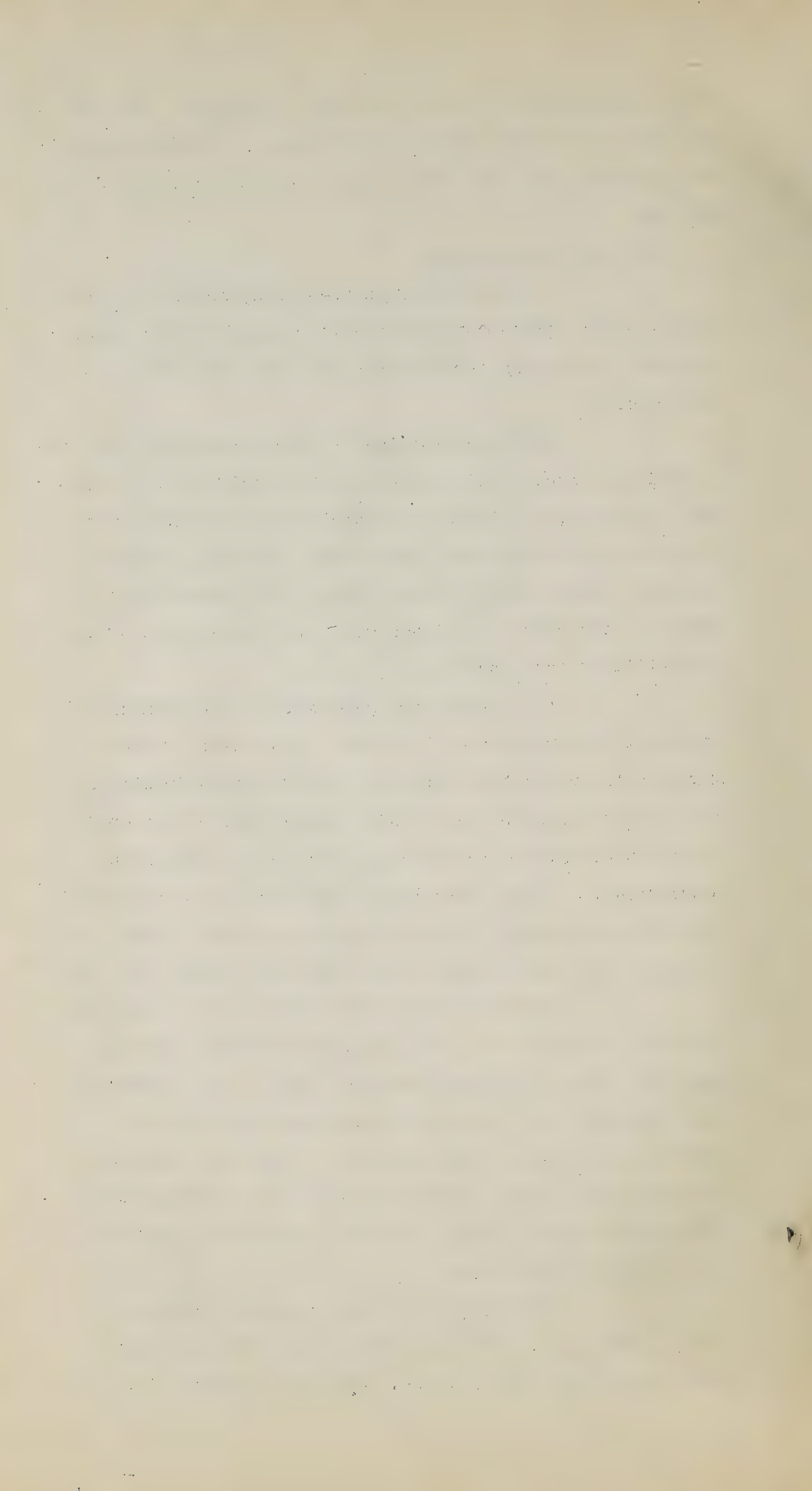
While acquisition of such a large area may be a difficult process and may have to be considered as a long-term objective, an alternative solution is presented by the possibility of zoning the area so that control of erosion and tree removal can be carried out. The maximum use of this area can only be achieved when full use is made of its possibilities for recreation.

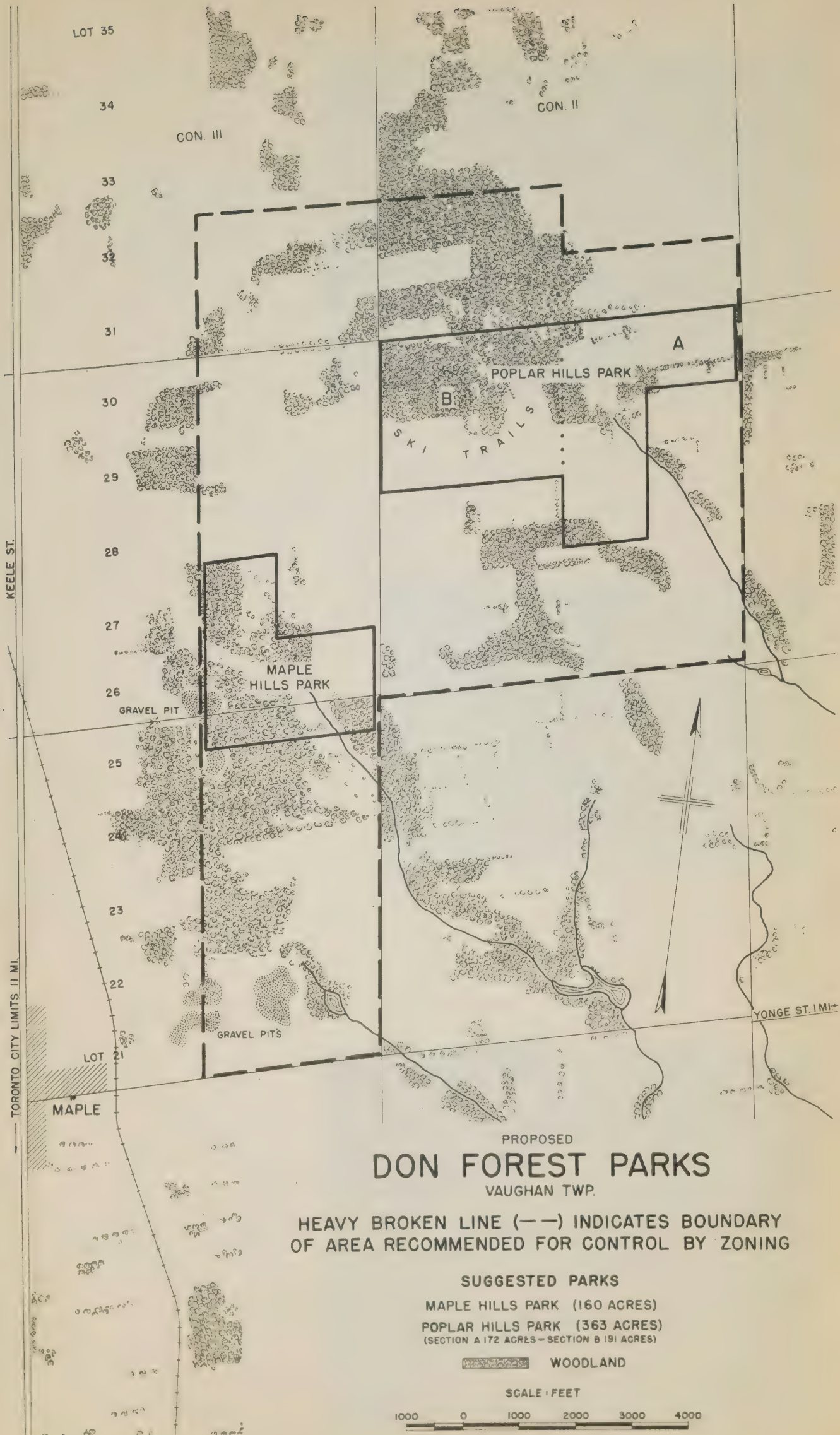
It is therefore recommended as an immediate practical measure that at least the 2,500 acres of land shown on the recreation map and on the detailed drawing as "Don Forest Parks" be zoned under Section 406 of the Municipal Act of Ontario (restricting its use to forestry and recreation). Within this large area there are two sections particularly suitable for acquisition as parks. These are shown on the plans as Maple Hills Park and Poplar Hills Park.

The two parks include areas of 160 acres and 363 acres respectively; the areas involved are chiefly woodlots and abandoned agricultural land. Both parks contain attractive ski trails and many areas suitable for individual and group camping sites. There are several sites which would be suitable for organized welfare camps. These parks could perform a valuable service in fostering education in conservation.

Access to both parks is simple since they lie on Dufferin and Bathurst Streets and are only two or three miles from Yonge Street. From one intensive use centre











*A suitable and attractive location plays a large part in the general effectiveness of such a simple roadside seat.*



*This picnic table is easily constructed, yet is sturdy enough to discourage picnickers from moving it away from the chosen location.*



*These natural stone steps on a trail blend with the surroundings and make an ascent more enjoyable to hikers.*







on the edge of each park, trails would radiate through the wooded hills for skiing, riding, nature study and hiking. Shelters at lookout points or other attractive spots would serve as rest points and give definite objectives for hikers or skiers. A map of the area would be posted at each shelter. In laying out roads and fire guards for utilization and protection of the forest these other uses should be kept in mind and plans for various uses integrated to effect economy.

Ski trails should be laid out to take advantage of north-east slopes where the melting of snow is retarded. The whole area is a paradise for the cross-country skier.

Two small streams start in the parks, but the general lack of water in the whole upland area emphasizes the need for preservation and development of such springs or other sources as exist. Camping sites can be developed wherever drinking water is available. Such sites will encourage the co-operation of Scouts and other youth groups interested in conservation.

## 2. Picnic Sites

Eight picnic sites, requiring the acquisition of from one to fifteen acres, are shown on the Recreation map (facing page 20). In most cases little more is required than the provision of tables and a place to park cars off the road allowance. In general small picnic sites are chosen to provide convenient rest and refreshment stops near heavily travelled roads. Most sites include possible swimming or wading pools. Site No. 1 is already marked with a cairn as a historical site, but in its present condition receives practically no public attention. At Site.No. 5 a sign should draw attention to the exceptionally good school plantation across the road.



List of Proposed Picnic Sites

<u>Map No.</u>	<u>Township</u>	<u>Concession</u>	<u>Lot</u>
1	North York	III E	(part) 15
2	North York	III E	" 15
3	North York	III E	" 25
4	Vaughan	II	" 16
5	Vaughan	I	" 46,47
6	Vaughan	III	" 6
7	Vaughan	IV	" 21
8	Markham	II & III	" 5

3. Scenic Drives

Such drives make an important contribution to the recreation facilities of a heavily populated area. For this type of facility an integration of plans is needed with Authorities in adjacent watersheds, local planning boards, road commissions and the Ontario Department of Highways. The acquisition of land for the Inner Green Belt will provide for valley drives and should include suitable stretches along the rim of the valley. Parts of present roads will be included but main roads should be avoided. These drives are intended for leisurely sightseeing. They relieve main arteries of this slow traffic, and should not be allowed to become mere speedways themselves.



GOVT PUBNS









